

UNITED STATES OF AMERICA
DEPARTMENT OF STATE
INTERNATIONAL BOUNDARY AND WATER COMMISSION
UNITED STATES AND MEXICO

WATER BULLETIN NUMBER 54

Flow of the Rio Grande and Related Data

*From Elephant Butte Dam, New Mexico
to the Gulf of Mexico*

1984

INTERNATIONAL BOUNDARY AND WATER COMMISSION
UNITED STATES AND MEXICO

UNITED STATES SECTION

MEXICAN SECTION

JOSEPH F. FRIEDKIN, *Commissioner*
4110 Rio Bravo
El Paso, Texas 79902

JOAQUIN BUSTAMANTE R., *Commissioner*
Apartado Postal 1612D
Cd. Juarez, Chihuahua

RICHARD L. BARNELL
Chief of Hydrography
P.O. Box 1564
Laredo, Texas 78040

OSCAR G. GUILBOT BOUILLET
Resident Engineer
3456 Pino Suarez Street
Nuevo Laredo, Tamaulipas

WATER BULLETIN NUMBER 54

Flow of the Rio Grande
and
Related Data

*From Elephant Butte Dam, New Mexico
to the Gulf of Mexico*

1984

STORAGE IN MAJOR RESERVOIRS
SOURCES OF RIVER FLOW
DIVERSIONS
QUALITY OF WATER
CLIMATOLOGICAL DATA
DRAINAGE BASIN AND IRRIGATED AREAS

CONTENTS

	Page
Foreword and Acknowledgments	4
General Hydrologic Conditions for 1984	6
Isohyetal Map for Year 1984	129
Map - Rio Grande Drainage Basin	Following Page 147

Quantity of Water

Stream-Flow Records	
Rio Grande below Elephant Butte Dam	7
below Caballo Dam	8
at El Paso	9
Diversions from the Rio Grande - American Canal at El Paso	10
Rio Grande below American Dam at El Paso and Cd. Juarez	11
Diversions from the Rio Grande - Acequia Madre at Cd. Juarez	12
Rio Grande near Clint and San Agustin (formerly Island Station near Clint)	13
near Acala and Praxedes Guerrero (formerly County Line Station near Acala)	14
at Fort Quitman near Colonia Luis Leon	15
near Candelaria and San Antonio del Bravo	16
above Rio Conchos near Presidio and Ojinaga	17
Tributary - Rio Conchos near Ojinaga	18
Alamito Creek near Presidio	19
Rio Grande below Rio Conchos near Presidio and Ojinaga	20
Tributary - Terlingua Creek near Terlingua	21
Rio Grande at Johnson Ranch near Castolon and Santa Elena	22
at Foster Ranch near Langtry and Rancho Santa Rosa	23
Tributary - Pecos River near Langtry	24
Dead Mans Canyon near Comstock	25
Devils River at Pafford Crossing near Comstock	26
Big Satan Creek near Comstock and Rough Canyon near Del Rio	27
North Fork San Pedro Creek and Middle Fork San Pedro Creek near Del Rio	28
Evans Creek near Comstock	29
Garmina Springs near Cd. Acuna	30
Lourdes and Hilda Springs near Cd. Acuna	31
Rio Grande below Amistad Dam near Cd. Acuna and Del Rio	32
Tributary - Springs M-15 and M-5 near Cd. Acuna	33
Arroyo de los Jaboncillos near Cd. Acuna	34
Arroyo del Buey and Arroyo de la Treinta y Una near Cd. Acuna	35
Maris Spring near Cd. Acuna	36
Eight Mile Creek near Del Rio	37
McKee Spring near Del Rio	38
Cantu Spring near Del Rio (formerly Cantu Spring on Cienegas Creek near Del Rio)	39
Cienegas Creek near Del Rio	40
Rio Grande at Del Rio and Cd. Acuna	41
Tributary - Arroyo de Las Vacas at Cd. Acuna	42
San Felipe Springs at Del Rio	43
San Felipe Creek near Del Rio	44
Diversions from the Rio Grande - Maverick Canal at Mile 13 near Quemado	45
Tributary - Pinto Creek near Del Rio	46
Rio San Diego near Jimenez (formerly Rio San Diego at Jimenez)	47
Rio Grande near Jimenez and Quemado (formerly Rio Grande below Maverick Dam near Quemado)	48
Tributary - Rio San Rodrigo at El Moral (formerly Rio San Rodrigo near mouth at El Moral)	49
Return Flow at Maverick Power Plant near Eagle Pass	50
Maverick Canal Extension below the Power Plant near Eagle Pass	51
Tributary - Return Flow from the Maverick Irrigation District above Eagle Pass (formerly Return Flow - Maverick Dam to Eagle Pass)	52
Rio Grande at Piedras Negras and Eagle Pass (formerly Rio Grande at Eagle Pass)	53
Tributary - Rio Escondido at Villa de Fuente	54
Return Flow from the Maverick Irrigation District below Eagle Pass (formerly Return Flow - Eagle Pass to San Antonio Crossing)	55
Rio Grande near El Indio and Villa Guerrero (formerly Rio Grande at San Antonio Crossing near El Indio)	56
at Villa Hidalgo near Laredo (formerly at Palafox near Laredo)	57
at Nuevo Laredo and Laredo (formerly at Laredo)	58
Tributary - Rio Salado near Las Tortillas (formerly Rio Salado at Las Tortillas)	59
Rio Grande below Falcon Dam near Falcon and Nueva Cd. Guerrero	60
Tributary - Rio Alamo at Cd. Mier	61
Contributions from the Lower Rio San Juan Irrigation District - Falcon Dam to Rio Grande City (formerly Contributions from Rio San Juan - Falcon Dam to Fort Ringgold)	62
Rio San Juan at Camargo	63
Diversions from the Rio Grande - Falcon Dam to Rio Grande City (formerly Falcon Dam to Fort Ringgold)	64
Rio Grande at Rio Grande City near Camargo (formerly Rio Grande at Fort Ringgold, Rio Grande City)	65
Tributary - Contributions from the Lower Rio San Juan Irrigation District - Rio Grande City to Anzalduas Dam (formerly Contributions from Rio San Juan - Fort Ringgold to Anzalduas Dam)	66
Diversions from the Rio Grande - Rio Grande City to Anzalduas Dam (formerly Fort Ringgold to Anzalduas Dam)	67

CONTENTS

Quantity of Water	Page
Diversions from the Rio Grande - Anzalduas Canal near Reynosa	68
Rio Grande below Anzalduas Dam near Reynosa and Mission	69
Floodways - United States and Mexico	70
Diversions from the Rio Grande - Anzalduas Dam to Progreso	71
Progreso to San Benito	72
Rio Grande near San Benito and Ramirez	73
Diversions from the Rio Grande - San Benito to Brownsville	74
Rio Grande near Brownsville and Matamoros	75
Diversions from the Rio Grande - Brownsville to the Gulf of Mexico	76
U. S. Side, Falcon Dam to the Gulf of Mexico	77
Tributary - Outfalls from Sewers	78
Diversions from the Rio Grande - Municipal and Industrial Water Uses - United States and Mexico	79
Stored Water in Large Reservoirs of the Rio Grande Basin - United States and Mexico	82

Quality of Water

Quality of Water	87
----------------------------	----

Climatological Data and Drainage Basin and Irrigated Areas

Rainfall on the Rio Grande Watershed - United States and Mexico	109
Average Rainfall on Subdivisions of the Rio Grande Watershed	128
Location of Rainfall Stations on the Rio Grande Watershed - United States and Mexico	131
Evaporation in the Rio Grande Basin - United States and Mexico	138
Temperature, Humidity, and Wind - United States and Mexico	140
Drainage Basin Area above Each Gaging Station and Corresponding Irrigated Areas	143

Supplementary Data

Deduced Inflows - International Amistad Reservoir	145
International Falcon Reservoir	146

Corrections to Previous Water Bulletins

Corrections to Previous Water Bulletins	147
---	-----

FOREWORD

This bulletin presents the fifty-fourth compilation of the stream discharges and related data concerning the international portion of the Rio Grande, prepared jointly by the United States and Mexican Sections of the International Boundary and Water Commission. The streamflow data and kindred subjects pertain to the Rio Grande and its important tributaries near their confluence with the main stream from Elephant Butte, New Mexico to the Gulf of Mexico. The first publication in the series was Water Bulletin No. 1 for the year 1931. The present volume contains information for the year 1984.

International stream gaging on the Rio Grande was initiated in 1889, when the station at El Paso, Texas was established. Several stations on the Rio Grande and its tributaries downstream from El Paso were established in 1900 and operated until 1914. Between 1914 and 1923, except for a few months in 1919 and 1920, all stream-gaging work on the international reach of the river was suspended. In 1923 the work was resumed and carried on independently by the two countries until 1931, when the present joint program of stream measurements was adopted.

During 1984 the United States Section of the Commission operated the stream-gaging stations on the Rio Grande at El Paso, American Dam, Clint, Acala, Fort Quitman, Candelaria, Above Rio Conchos, Below Rio Conchos, Johnson Ranch, Foster Ranch, Del Rio, El Indio, Rio Grande City, San Benito, and Brownsville. The Mexican Section operated the stream-gaging stations on the Rio Grande at Below Amistad Dam, Jimenez, Piedras Negras, Villa Hidalgo, Laredo, and Below Anzalduas Dam. The station at Falcon Dam was operated jointly by the two Sections. Each Section operated the gaging stations on tributary streams, floodways, and diversions within its own country.

Beginning in 1976, the names of several gaging stations were changed, pursuant to agreement between the two Sections of the Commission. Where it was decided that some confusion might result from this change, a note giving the former name was added to the descriptive heading of the gaging station.

The total drainage area within the outer rim of the Rio Grande Basin is 335,500 square miles. However, about half of this area yields no runoff to the river, the estimated productive area of the watershed being 176,333 square miles. Reservoirs in the basin have a total storage capacity of approximately 11,716,000 acre-feet, in addition to the International Amistad and Falcon Reservoirs, which have a combined conservation capacity of 6,051,000 acre-feet. In the Rio Grande Basin, a rounded total of 2,225,000 acres is irrigated below Elephant Butte Dam on the Rio Grande and below Girvin on the Pecos River. The flow of the Rio Grande to the Gulf of Mexico below Brownsville prior to construction of Falcon Dam averaged 2,600,000 acre-feet per year for the period 1934-1952. For the period 1954-1984, this flow has averaged 872,500 acre-feet per year.

The mean sea level datum, referred to as the U. S. C. & G. S. in the description of the stream-gaging stations, is the North American Vertical Datum of 1927.

Acknowledgments

Other agencies which have contributed to some part of the data published herein include: The Agricultural Research Service and the Soil Conservation Service of the U. S. Department of Agriculture; the Bureau of Reclamation and the Geological Survey of the U. S. Department of the Interior; the National Weather Service of the U.S. Department of Commerce; the Texas Board of Health; the Texas Department of Water Resources; the Middle Rio Grande Conservancy District; the Red Bluff Water Power Control District; State of Colorado, Division of Water Resources; the Rio Grande Compact Commission; the Willacy County Water Control and Improvement District No. 1; the Del Rio City Water Department; the Eagle Pass City Water Department; the Laredo City Water Department; the Del Mar Conservation District; Central Power and Light Company; the El Paso Department of Water and Sewerage; the Maverick County Water Control and Improvement District No. 1; the Ministry of Agriculture and Hydraulic Resources of Mexico; the Meteorological Service of Mexico; Meteorological Service of the State of Chihuahua, Mexico; Federal Power Commission of Mexico; Potable Water Board of Piedras Negras, Coahuila; Federal Board of Public Improvement Works of Nuevo Laredo, Tamaulipas; and the Water and Drainage Board of Cd. Acuna, Coahuila.

Additional contributions have been made by individuals and corporations; and specific notation is made for such, as well as for those of the above-named agencies, where the data appear. The courtesy and cooperation of those who made these contributions are acknowledged with appreciation.

Period Averages

In Water Bulletins Nos. 1 through 29, normal or average discharge volumes shown for the various gaging stations were based on a period beginning in 1924, or thereafter when records became available.

Beginning with Water Bulletin No. 30, the periods have been revised to include only the years following completion of major projects below which the flow of the Rio Grande or a major tributary was modified, or later when records became available. The revised periods are based on the completion of Caballo Dam in 1938, irrigation projects on the Rio Conchos and its tributaries in 1947, International Falcon Dam in 1953, and Amistad Dam and Luis L. Leon Dam in 1968.

For purposes of comparison with the average flows in the Rio Grande below Caballo Dam, records of average discharge in the Rio Grande below Elephant Butte Dam have also been revised to include the same period.

The period of record used to determine the average diversions from the Rio Grande to the United States below Falcon Dam published herein was restricted to begin in 1957, the first complete year of record after United States' waters in Falcon Reservoir were placed under the jurisdiction of the 93rd District Court of Texas.

FOREWORD

Units of Measure

Data collected by the Mexican Section are computed and published in a Spanish version of the water bulletin in metric units. The Mexican data are converted and reported in this bulletin in English units. Conversion factors conform generally to those in the National Bureau of Standards Miscellaneous Publication 286 "Units of Weight and Measure (United States Customary and Metric) - Definitions and Tables of Equivalents." However, for convenience some of the factors have been shortened and modified to facilitate conversion, reconversion to the original units when necessary, and checking of data. Conversion of the mean daily discharges, the monthly average discharge, and the monthly volumes from metric to English units is direct. For this reason the monthly average discharge in cubic feet per second and monthly volumes in acre-feet shown for gaging stations operated by the Mexican Section cannot necessarily be obtained in the usual manner from total monthly flow in second-foot days. For this reason, evaporation and rainfall data, when totaled, may not be equivalent to the direct conversion from metric to English units. The following factors have been used for data in this bulletin.

<u>METRIC UNITS</u>	<u>LENGTHS</u>	<u>ENGLISH UNITS</u>
1 Centimeter		0.39370 Inch
1 Meter		3.28084 Feet
1 Kilometer		0.62137 Mile
	<u>AREAS</u>	
1 Square Meter		10.76391 Square Feet
1 Hectare		2.47105 Acres
1 Square Kilometer		0.38610 Square Mile
	<u>VOLUMES</u>	
1 Cubic Meter		61023.74 Cubic Inches
1 Cubic Meter		35.31467 Cubic Feet
1 Cubic Meter		1.30795 Cubic Yards
1000 Cubic Meters		0.81071 Acre-Foot
1 Liter		0.26417 U. S. Gallon
	<u>WEIGHTS</u>	
1 Kilogram		2.20462 Pounds
1 Metric Ton		2204.623 Pounds
1 Metric Ton		1.10231 Short Tons (2,000 lbs.)

Both English and metric units are used to report the figures in the descriptive headings and for the yearly figures of the annual and period summaries of all gaging station pages. The yearly figures for the summaries are obtained by direct conversion from English to metric system of units, except for those stations operated by the Mexican Section, where the figures furnished in the metric system of units are used.

GENERAL HYDROLOGIC CONDITIONS FOR 1984

Along and Adjacent to the International Portion of the Rio Grande

During the year 1984, temperatures were 101% of average on the watershed of the Rio Grande below El Paso, Texas. Evaporation was 101% of average. Precipitation was 97% of average from El Paso to Amistad Dam, 62% of average from Amistad Dam to Falcon Dam, 66% of average from Falcon Dam to Rio Grande City, and 103% of average in the Lower Rio Grande Valley on the United States side.

The yearly volume of flow of the Rio Grande was above average from El Paso to the confluence of the Rio Conchos with the Rio Grande and below average from the Rio Conchos confluence to the Gulf of Mexico. In the reach between El Paso and the confluence of the Rio Conchos, the flow was 110% of average, ranging from 78% of average at Below American Dam to 163% at Above Rio Conchos; in the reach between the confluence of the Rio Conchos and Amistad Reservoir, where most of the flows originate from releases from Luis L. Leon Reservoir (El Granero) on the Rio Conchos, the flow was 99% of average; and in the reach between Amistad Dam and Falcon Reservoir, where flows mostly originate from releases from Amistad Reservoir, the flow was 89% of average. Most of the flows passing the Rio Grande stations below Falcon Dam originated from releases from Falcon Reservoir, which in 1984 amounted to 2,074,721 acre-feet, or 86% of the average for the thirty-one years of operation, 1954 to 1984. The volume of flow wasted to the Gulf of Mexico was 163,085 acre-feet, which is 19% of the average for this thirty-one year period.

The total annual flow of all measured tributaries below Fort Quitman was 55% of average. The total flow of these tributaries in the United States was 358,306 acre-feet, or 52% of average. For Mexico, the measured tributary flow, excluding Rio Alamo and Rio San Juan, was 901,112 acre-feet, or 71% of average. The flows of the Rio Alamo and Rio San Juan were 20% and 22% of their respective averages.

Return flow to the Rio Grande at Maverick Power Plant near Eagle Pass was 709,503 acre-feet, or 114% of the seventeen-year average. Return flow to the Rio Grande through various drains in the Maverick County Irrigation District, excluding storm inflow, amounted to 52,671 acre-feet, or 40% of the seventeen-year average.

There were no floods of consequence on the Rio Grande in 1984. The highest peak flows recorded on the Rio Grande were, above Falcon Dam, 37,400 second-feet at Piedras Negras; and, below Falcon Dam, 15,900 second-feet at Below Falcon Dam.

For all reservoirs in the Rio Grande basin having a capacity greater than 15,000 acre-feet, excepting Amistad and Falcon International Reservoirs, the average amount of water in storage in 1984 was 5,630,900 acre-feet, or 123% of the average 4,581,800 acre-feet. In the United States, stored water in these reservoirs was 171% of average, while in Mexico it was 100% of average.

In International Amistad Reservoir there was a net decrease in storage during the year of 268,500 acre-feet. Storage ranged from a high of 2,732,300 acre-feet on February 19 and other days to a low of 2,181,500 acre-feet on August 12 and other days and averaged 2,405,800 acre-feet during the year, or 80% of the average for the period 1969 through 1984. In International Falcon Reservoir, there was a net decrease in storage during the year of 345,200 acre-feet. The storage varied from a high of 1,251,100 acre-feet on March 27 and other days to a low of 653,600 acre-feet on August 24 and other days and averaged 914,200 acre-feet during the year, or 46% of the average for the thirty-one years of operation, 1954 through 1984.

Diversions from the Rio Grande in the United States were 104% of average. Diversions into the American Canal were 108% of average, into the Maverick Canal, 99% of average and in the United States below Falcon Dam, 109% of the average for the twenty-eight years, 1957-1984. In Mexico, diversions were 111% of average. Diversions into the Acequia Madre were 121% of average, while diversions through the Anzalduas Canal for irrigation in Mexico were 111% of the thirty-one year average.

In 1984, the total reported irrigated acreage from the Rio Grande and its tributaries below El Paso, Texas showed a decrease of 2% from the previous year. On the United States side, there was a decrease of about 5% above Falcon Dam and a decrease of about 1% below Falcon Dam, for an overall average decrease of 1%. On the Mexican side, there was a decrease of 6% above Falcon Dam and an increase of about 1% below Falcon Dam, for an overall average decrease of 2%.

In 1984, investigation of the quality of Rio Grande water extended from El Paso to Brownsville. The annual tonnage of salts carried by the river at Laredo above Falcon Reservoir was 92% of the 1968-1984 average; and at the station below Anzalduas Dam, 63% of the 1959-1984 average. The volume of suspended silt transported by the Rio Grande in 1984 was 22% of the 1968-1984 average at Laredo above Falcon Reservoir.

RIO GRANDE BELOW ELEPHANT BUTTE DAM, NEW MEXICO

DESCRIPTION: Concrete wall control, bubbler gage, and water-stage recorder located on the left bank 100 feet (30.5 m) upstream from the cableway at latitude 33°08'45", longitude 107°12'20", and river mile 1,389.1 (2,235.5 km); 0.7 river mile (1.1 km) downstream from Elephant Butte Dam, 1.5 river miles (2.4 km) upstream from Cuchillo Negro River, and 135.1 river miles (217.4 km) upstream from the American Dam at El Paso, Texas. The zero of the gage is 4,242.09 feet (1,292.99 m) above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 27 discharge measurements during the year and a continuous record of gage heights. Records were furnished by the United States Geological Survey. Records available: 1915 through 1984.

REMARKS: Reservoirs, diversions, and drainage returns modify the river flow at this station. Beginning December 1940, hydroelectric power generation facilities for 27,000 kva were placed in operation at Elephant Butte Dam.

EXTREME FLOWS FROM RECORDS:

		Average Flow in Second-Feet (Cubic Meters per Second)			
Daily:	Max. 8,220 (233)	May 22, 1942	Min. 0	Occasionally	
Monthly:	Max. 7,600 (215)	May 1942	Min. 1.2 (0.03)	Nov. 1971	
Yearly:	Max. 2,510 (71.1)	1942	Min. 253 (7.16)	1964	

Mean Daily Discharge in Second-Feet 1984 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	22.0	1,040 *	1,070 *	1,400	2,180 *	2,210 *	1,960	613 *	29.0	19.0	12.0	12.0
2	22.0	1,050	1,070	1,400 *	2,180	1,910	1,960	603	25.0	* 17.0	13.0	12.0
3	1,050	1,040	1,070	1,410	2,160	2,200	1,960	609	24.0	* 17.0	13.0	* 13.0
4	1,050	1,050	31.0	1,410	2,130	2,140	1,970	613	* 22.0	13.0	13.0	16.0
5	1,050	32.0	1,050	1,410	2,130	2,170	1,950 *	615	18.0	12.0	13.0	20.0
6	1,050	1,010	1,050	1,430	2,110	2,180	1,940	635	* 16.0	13.0	14.0	17.0
7	33.0	1,030	1,050	1,430	2,100	2,170	1,920	632 *	19.0	12.0	15.0	17.0
8	30.0	1,040	1,050	1,430	2,100	2,150	1,230	632	16.0	12.0	14.0	17.0
9	993 *	1,050	1,050	1,470	2,100	2,150	1,240	633	16.0	11.0	13.0	17.0
10	1,050	1,060	1,050	2,150	2,100	2,140	1,230	640	224	10.0	14.0	17.0
11	1,040	1,050	26.0	2,170	2,100	2,130	1,230	648	18.0	9.7	14.0	18.0
12	1,040	31.0	675	2,170	2,100	2,110	1,230	653	21.0	9.5	14.0	19.0
13	1,040	1,050	578	2,150	2,110	2,110	1,240	659	1,230	11.0	15.0	19.0
14	35.0	1,050	585	2,160	2,110	2,110	1,240	661	1,320	11.0	15.0	18.0
15	29.0	1,040 *	680	2,160	2,110	2,110 *	1,240	39.0	1,310	* 11.0	15.0	18.0
16	1,030	1,030	681	2,150 *	2,110	2,100	1,250	* 16.0	1,310	10.0	* 15.0	17.0
17	1,030	1,050	686	2,140	2,110	2,100	1,250	15.0	1,310	12.0	15.0	17.0
18	1,030	1,040	25.0	2,150	2,090 *	2,100	1,250	17.0	1,230	10.0	15.0	16.0
19	1,030	* 25.0	680 *	2,150	2,100	2,090	1,240	16.0	459	887	15.0	16.0
20	1,010	1,020	684	2,150	2,100	2,070	1,240	18.0	428	1,280	15.0	17.0
21	25.0	1,030	686	2,140	2,120	2,060	1,240	19.0	435	1,270	15.0	15.0
22	* 20.0	1,040	686	2,150	2,120	2,060	1,250	* 18.0	440	854	15.0	14.0
23	1,050 *	1,040	692	2,150	2,140	2,050	1,250	18.0	21.0	15.0	15.0	14.0
24	1,020	1,030	683	2,150	2,160	2,040	1,250	18.0	440	12.0	14.0	14.0
25	1,040	733	26.0	2,150	2,160	2,040	1,240	18.0	439	12.0	15.0	14.0
26	1,020	26.0	700	2,150	2,180	2,010	1,240	19.0	442 *	12.0	13.0	14.0
27	1,030	1,050	594	2,160	2,190	2,010	1,250	19.0	440	* 13.0	12.0	15.0
28	33.0	1,060	696	2,170	2,200	1,990	1,250	20.0	515	12.0	12.0	15.0
29	29.0	1,180	965	2,170	2,210	1,990	1,240	18.0	1,290	12.0	12.0	15.0
30	1,030		1,410	2,180	2,210	1,970	1,230	15.0	912	12.0	12.0	15.0
31	1,050		1,410	2,210	2,210	1,970	1,240	108		* 12.0	12.0	15.0
Sum	22,011.0	25,987.0	23,695.0	58,060	66,230	62,670	43,450	9,257.0	14,419.0	4,623.2	417.0	493.0

Current Year 1984								Period 1938-1984			
Month	Extreme Gage Feet		Extreme Second-Feet			Average Second-Feet	Total Acre-Feet	Acre-Feet			
	High	Low	Day	High	Day			Low	Average	Maximum	Minimum
Jan.			1 3	1,050	22	20.0	710	43,658	24,706	86,500	200
Feb.			29	1,180	19	25.0	896	51,544	37,388	88,861	188
Mar.			130	1,410	18	25.0	764	46,998	64,915	128,925	1,022
Apr.			30	2,180	1	1,400	1,940	115,160	80,235	162,000	11,207
May			129	2,210	18	2,090	2,140	131,365	84,271	467,000	512
June			1	2,210	2	1,910	2,090	124,304	93,010	363,000	16,913
July			4	1,970	8	1,230	1,400	85,182	91,901	211,000	41,352
Aug.			14	661	117	15.0	299	18,361	72,958	134,000	9,530
Sept.			14	1,320	1	16.0	481	28,600	31,582	129,000	163
Oct.			20	1,280	12	9.5	149	9,170	14,798	72,100	166
Nov.			1	15.0	1	12.0	13.9	827	15,596	158,000	74.2
Dec.			5	20.0	1	12.0	15.9	978	20,232	87,300	179
Yearly				2,210		9.5	905	657,147	631,591	1,818,800	183,415
	Meters		Cubic Meters per Second			Thousands of Cubic Meters					
				62.6		0.27	25.6	810,578	779,055	2,243,490	226,242

* Discharge measurement made on this day Ø Mean daily ! And other days

RIO GRANDE BELOW CABALLO DAM, NEW MEXICO

DESCRIPTION: Cableway, gravity well, and water-stage recorder located on the left bank at latitude 32°53'05", longitude 107°17'30", and river mile 1,350.8 (2,190.0); 0.3 river mile (1.3 km) downstream from Caballo Dam, about 3 miles (5 km) northeast of Arrey, New Mexico, 5 miles (8.0 km) south of Caballo, New Mexico, and 106.8 river miles (171.9 km) upstream from the American Dam at El Paso, Texas. The zero of the gage is 4,140.90 feet (1,262.15 m) above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 48 discharge measurements during the year and a continuous record of gage heights. Records were furnished by the El Paso office of the United States Bureau of Reclamation. Records available: 1938 through 1984.

REMARKS: Reservoirs, diversions, and drainage returns modify the river flow at this station. In addition to the outflow from Caballo Dam listed below, 1,452 acre-feet (1,791,000 m³) of water were diverted in 1984 into Bonita Lateral, a small irrigation canal just below Caballo Dam. Prior to 1938, discharge records were kept at Percha Dam, a low diversion dam about 1.5 miles (2.4 km) downstream from this station. Small accretions to the river take place between the station and Percha Dam.

EXTREME FLOWS FROM RECORDS:

		Average Flow in Second-Feet (Cubic Meters per Second)			
Daily:	Max.	7,650 (217)	May 20, 1942	Min.	0.1 (0.003)
					Several days 1954, 1955 and 1972
Monthly:	Max.	6,710 (190)	May 1942	Min.	0.1 (0.003)
					Nov. & Dec. 1955
Yearly:	Max.	2,480 (70.2)	1942	Min.	284 (8.04)
					1964

Mean Daily Discharge in Second-Feet 1984 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1.0	2.0	1,210	1,110	1,460 *	1,680 *	1,560	1,900	1,570	1,160	2.0	2.0
2	1.0	2.0	1,290 *	1,090	1,510	1,540	1,560	1,890	1,640	591	1.0	1.0
3	1.0	2.0	1,340	1,250 *	1,530	1,540	1,730 *	1,800	1,650	10.0	1.0	1.0
4	1.0	2.0	1,380	1,480	1,330 *	1,340	1,980	1,340	1,680 *	3.0	1.0	1.0
5	1.0	2.0	756	1,510	1,190	1,410 *	1,950	1,070	1,710	3.0	1.0	1.0
6	1.0	2.0	736	1,400 *	1,190	1,630	1,940	1,030	1,740	3.0	1.0	1.0
7	1.0	2.0	996	1,320	1,180	1,620	1,910	998	1,780	2.0	1.0	1.0
8	1.0	2.0	1,020	1,320	1,380 *	1,540 *	1,920	984 *	1,740	2.0	1.0	1.0
9	1.0	302 *	1,140 *	1,320	1,520	1,470	1,930	530	1,950	2.0	1.0	1.0
10	1.0	539	1,220	1,470	1,530	1,470	2,220 *	293 *	1,790	2.0	1.0	1.0
11	1.0	528	1,300	1,590	1,560	1,500	2,500 *	297	1,700	2.0	1.0	1.0
12	1.0	508	1,290	1,610	1,590	1,740 *	2,500	222	1,600	2.0	1.0	1.0
13	1.0	484	1,520 *	1,310 *	1,600	2,040	2,300	224	1,640	2.0	1.0	2.0
14	1.0	329	1,740	1,080	1,610	2,020	2,120	232	1,460	2.0	1.0	2.0
15	1.0	240	1,730	1,990	1,750 *	1,890 *	2,110	249	1,300	2.0	1.0	2.0
16	2.0	258	1,790	1,090	1,710	1,740	2,110	250	1,300	2.0	2.0	2.0
17	2.0	501	1,840	1,280 *	1,610	1,650	2,340 *	268 *	1,300 *	2.0	2.0	2.0
18	2.0	529	1,850	1,530	1,430	1,480	2,470	837	1,330	2.0	2.0	2.0
19	2.0	529	1,870	1,550	1,340	1,240	2,510	873	1,370	2.0	2.0	2.0
20	2.0	523	1,910	1,410	1,300	964	2,390	838	1,370	2.0	2.0	2.0
21	2.0	510	1,960	1,320 *	1,300	964	2,260	1,150 *	1,160	2.0	2.0	2.0
22	2.0	500	1,950	1,340	1,630 *	1,160 *	2,260	1,300	992	2.0	2.0	2.0
23	2.0	500	1,900 *	1,340	1,980	1,280	2,140	1,320	992 *	2.0	2.0	2.0
24	2.0	458	1,770	1,740 *	1,970	1,280	2,050 *	1,240	992 *	2.0	2.0	2.0
25	2.0	423	1,800	1,920	1,800 *	1,290	1,990	1,130	992	2.0	2.0	2.0
26	2.0	400	1,790	1,900	1,650	1,620 *	1,970	543	992	2.0	2.0	2.0
27	2.0	423	1,650	1,720	1,550	1,970	1,790	715	930	2.0	2.0	2.0
28	2.0	910	1,530 *	1,550	1,660	1,730	1,560	1,130	1,020	2.0	2.0	2.0
29	2.0	1,410	1,550	1,470	1,780 *	1,600 *	1,520	1,250	1,160	2.0	2.0	2.0
30	2.0		1,350	1,410	1,840	1,550	1,440	1,300	1,160	2.0	2.0	2.0
31	2.0		1,120 *		1,830		1,680 *	1,390		2.0	2.0	2.0
Sum		10,820.0		42,520		45,958		28,734		1,820.0		52.0
		47.0	46,208		48,420		62,710		41,910		46.0	

Current Year 1984								Period 1938-1984			
Month	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet		
	High	Low	Day	High	Day	Low			Average	Maximum	Minimum
							Jan.				
Feb.			29	1,410	1	2.0	373	21,461	8,276	64,300	11.7
Mar.			21	1,960	6	736	1,490	91,652	83,728	135,000	24,900
Apr.			25	1,920	14	1,080	1,420	84,337	78,547	212,000	25,470
May			23	1,980	15	1,190	1,560	95,040	74,913	412,000	75.2
June			13	2,040	120	964	1,530	91,156	102,853	354,000	25,289
July			19	2,510	30	1,440	2,020	124,393	109,492	234,000	28,200
Aug.			1	1,900	12	222	927	59,993	103,375	179,000	20,500
Sept.			9	1,350	27	930	1,400	83,127	48,679	181,000	6,757
Oct.			1	1,160	17	2.0	53.7	3,610	3,697	35,400	15.5
Nov.			1	2.0	2	1.0	1.5	91.2	1,932	14,400	7.0
Dec.			1	2.0	2	1.0	1.7	103	2,003	19,100	6.0
Yearly				2,500		1.0	900	653,046.4	618,700	1,795,670	206,084.6
	Meters		Cubic Meters per Second				Thousands of Cubic Meters				
				70.8		0.03	25.5	805,520	763,154	2,214,959	254,205

* Discharge measurement made on this day Ø Mean daily ! And other days

RIO GRANDE AT EL PASO, TEXAS

DESCRIPTION: Gravity well and water-stage recorder located on the downstream side of the first pier from the left abutment of the Courchesne Bridge at latitude 31°48'10", longitude 106°32'25", and river mile 1,255.7 (2,020.8 km); 5.5 river miles (8.9 km) upstream from the Paso del Norte Bridge between El Paso, Texas and Cd. Juarez, Chihuahua and 1.7 miles (2.7 km) upstream from the American Dam at El Paso, Texas. The zero of the gage is 3,722.30 feet (1,134.56 m) above mean sea level, U. S. C. & G. S. datum.

RECORDS: Mean daily discharges in 1984 were computed by adding the flows in the American Canal and the flows at the river station below the American Dam. Because the mean daily discharges are rounded, the monthly sum for this station may not equal the sum of the monthly sums of the other two stations. Extreme discharges are those passing the El Paso station. In 1934, 15 discharge measurements were made at this station. Records available: 1889 through 1984.

REMARKS: Reservoirs, diversions, and drainage returns modify the river flow at this station.

EXTREME FLOWS FROM RECORDS: Momentary: Max. 24,000 second-feet (680 m³/sec) on June 12, 1905. Min. occasionally no flow. Since Elephant Butte Dam was closed in 1915, the largest peak flow to pass this station was 13,500 second-feet (382 m³/sec) on September 3, 1925.

Average Flow in Second-Feet (Cubic Meters per Second)

Daily:	Max. 23,680 (671)	June 12, 1905	Min. 0	Occasionally
Monthly:	Max. 14,300 (405)	June 1905	Min. 0	Occasionally
Yearly:	Max. 2,780 (78.7)	1905	Min. 70.1 (1.99)	1902

Mean Daily Discharge in Second-Feet 1984 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	79.1	55.6	399	655	617	607	810	820	777	490	203 *	116
2	77.7	53.1	603	531	562	685	775	848	790	593	192	114
3	74.4	49.8	444	452	550	695	761	970	814	704	189	112
4	75.1	45.8	352	441	697	698	724	1,290	807	972 *	183	117
5	76.6	42.2	386	395	700	748	720	1,940	758	753 *	174	118
6	76.1	38.7	573	487	697	678	718	1,380 *	748	473	167	109 *
7	75.5	37.2	437	550	649	574	736	1,410	568	399	170	115
8	76.9	37.3	200	592	623	668	740	1,210	569	361	156	111
9	82.8	35.6	341	590	638	627	721	1,110 *	647	337	159	115
10	75.3	34.1	390	584	603	659	723	1,260	642	270	148	112
11	76.2	33.3	386	594	612	628	749	1,120	844	239 *	146	113
12	73.5	37.3	446	607	645	584	875	1,120	757	233	147	116
13	70.8	384	573	660	641	614	982	1,220	622	281	143	132
14	68.1	294	516	685	636	671	999	790	541	419	141	252
15	66.6	403	501	667	645	859	947	696	549	295	138 *	175
16	55.3	372	487	540	573	1,040	840	551	595	251	132	189
17	67.4	261	495	508	1,090	1,120	874	581	624	228	141	168
18	64.8	223	615	478	1,030	1,050	859	549	598	226 *	147	148
19	64.0	180	729	483	1,020	1,120	1,060	417	560 *	215	137	133
20	62.6	310	728	645	917	1,160	1,000	362	559	210	128	138
21	61.6	315	762	551	824	949	1,100	581	546	204	125	158 *
22	62.9	329	712	656	780	712	1,040	554	569	215	123	146
23	62.8	277	700	620	695	628	1,010	609	535	214	125	185
24	65.2	293	709	652	708	574	1,090	681	466	260	143	215
25	60.8	290	583	640	816	561	1,020	779	490	274 *	137	187
26	61.5	286	518	613	802	639	986	842	499	353	140	166
27	61.0	223	663	723	745	708	950	1,020	510 *	303	128	151 *
28	59.7	210	647	721	626	816	978	936	509	254	123	163
29	60.4	220	637	740	608	952	1,180	643	507	235	123 *	149
30	57.0		522	667	607	832	960	580	441	218	119	147
31	55.3		675		592		884	777		211		200
Sum	2,117.1	5,430.0	16,969	17,828	22,243	22,956	27,816	27,646	18,481	10,680	4,437	4,570

Month	Current Year 1984						Period 1938-1984				
	Extreme Gage Feet		Extreme Second-Feet			Average Second-Feet	Total Acre-Feet	Acre-Feet			
	High	Low	Day	High	Day			Low	Average	Maximum	Minimum
Jan.	2.21	2.00	9	34.5	30	52.7	58.3	4,199	6,094	15,594	220
Feb.	3.30	1.98	15	421	12	28.7	187	10,770	7,275	52,200	136
Mar.	4.16	2.55	1	1,040	8	162	547	33,658	33,764	62,500	1,790
Apr.	4.20	3.30	29	781	5	340	594	35,351	40,126	139,000	6,820
May	5.01	3.04	16	1,140	3	464	718	44,128	42,999	357,000	522
June	5.72	3.63	16	1,250	7	539	765	45,533	51,096	304,000	6,020
July	5.49	4.04	29	1,180	8	699	897	55,172	57,194	198,000	9,652
Aug.	6.11	3.10	5	1,940	20	362	992	54,835	55,930	158,000	4,870
Sept.	4.51	3.49	11	844	30	420	616	36,657	37,852	171,000	2,430
Oct.	4.93	2.77	4	1,110	23	188	345	21,183	13,643	57,900	151
Nov.	2.30	2.53	1	207	30	116	148	8,801	8,079	21,300	229
Dec.	2.93	2.50	14	252	6	105	147	9,054	7,587	25,600	206
Yearly	5.11	1.98		1,940		23.7	495	359,361	361,639	1,559,200	57,481
	Meters		Cubic Meters per Second			Thousands of Cubic Meters					
	1.35	0.60		54.9		0.81	14.0	443,265	446,074	1,923,273	70,903

* Discharge measurement made on this day Ø Mean daily

DIVERSIONS FROM THE RIO GRANDE AMERICAN CANAL AT EL PASO, TEXAS

DESCRIPTION: Concrete control consisting of two triangular-shaped wingwalls extending toward the center of the canal about one-fourth of the canal width and downstream at a 30° angle with the canal side walls, bubbler gage, water-stage recorders (graphic and digital), and binary decimal transmitter located on the right bank of the concrete-lined canal at El Paso, Texas, latitude 31°46'40", longitude 105°31'35", and about 2,400 feet (700 m) downstream from the headgates of the American Dam, which are located at river mile 1,254.0 (2,018.0 km). The zero of the gage is 3,712.09 feet (1,131.45 m) above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 15 discharge measurements during the year, a stable rating curve at medium and high flows, and a continuous record of gage heights. Records available: June 2, 1938 through 1934.

REMARKS: This canal diverts water from the Rio Grande at the American Dam at El Paso, Texas, 2.1 river miles (3.4 km) upstream from the International Dam at Cd. Juarez, Chihuahua. Water from this canal discharges into the Franklin Canal from which water is frequently returned to the Rio Grande at spillways 2.2 (3.5), 2.7 (4.3), and 3.6 (5.8) river miles (km) downstream from the American Dam. The transmitter relays gage height data upon interrogation by telephone via commercial circuits.

EXTREME FLOWS FROM RECORDS: Momentary: Max. 1,840 second-feet (52.1 m³/sec) on March 27, 1944. Min. frequently no flow.

Average Flow in Second-Feet (Cubic Meters per Second)				
Daily:	Max. 1,510 (42.8)	Aug. 13, 1945	Min. 0	Frequently
Monthly:	Max. 1,210 (34.3)	Aug. 1943	Min. 0	Frequently since 1952
Yearly:	Max. 748 (21.2)	1943	Min. 65.6 (1.86)	1956

Mean Daily Discharge in Second-Feet 1984 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	74.5	* 51.5	394 *	480	472	465 *	638	645 *	551	490 *	200	113
2	72.7	48.9	598	355 *	420 *	519	604	664	582	593	189 *	111
3	69.3	45.7	439	271	407	521	591	793	601	704	186	109 *
4	* 69.4	41.6	348	267	553	517	556	873	602	842	180	114
5	70.7	38.0	382	222	559	560	546	892	560	741	171	115
6	70.2	34.5	569	309	556	501	547	943	550	469	164	106
7	59.7	33.1	433	374	511	397	561	949	384 *	386	167	112
8	71.0	33.1	195	421	479	484	560	932	337	359	163	108
9	76.5	31.5	337	424	494	454	455	867	460	335	156	112
10	68.3	29.3	336	414	457	481	547	829	455	268	145	109
11	70.3	29.5	382	417	478	455	578 *	950	630	238	143	110
12	67.6	33.3	442	419	518	413	691	954	559	232	144	113
13	64.5	379 *	508	472	513	438	811	962	619	280	140	129
14	52.2	289	511	496	502	496	930	663	538	418	138	114
15	61.2	398	496	488	515	684	767	501	543	295	135	0
16	59.6	357	482	366	742	806	668	354	590	251	129	0
17	61.7	256	490	328	954	870	699	389	619	228	138	0
18	59.1	218	611	297	906 *	834	687	366	583	226	144	0
19	53.3	174	724	299	900	849	887	235	555	215	134	0
20	56.4	305	722	457	799	975	844	179	555	210	125	0
21	55.4	310	757	464	702	901	931	389	542	204	122	0
22	57.2	323	707 *	473	654	538	876	362	565	215	120	0
23	57.4	272	594	447	561	462	843	409	581	214	122	0
24	59.3	287	701	480	563	406	926	480	462	260	140	0
25	55.4	284	675	460	574	483	847	568	485	273	134	0
26	57.3	280	518	429	654	465	824	613	495	342	137	0
27	56.6	217	513	527	598	532	774	821	508	299	125	0
28	55.6	204	487	545	493	643	900	755	508	251	120	0
29	56.3	215	461	573	478	773	941	455	506	232	120	0
30	52.3		448	513	474	668	799	380	440	215	116	0
31	51.4		498		460		707	550		208		0
Sum	1,949.1	5,283.6	15,909	12,487	18,066	17,541	22,425	19,723	16,116	10,493	4,347	1,575.0

Month	Current Year 1984						Period 1939-1984				
	Extreme Gage Feet		Extreme Second-Feet			Average Second-Feet	Total Acre-Feet	Acre-Feet			
	High	Low	Day	High	Low			Average	Maximum	Minimum	
Jan.	3.86	3.41	9	33.6	30	48.5	62.9	3,866	2,490	15,594	0
Feb.	5.60	3.36	15	416	12	24.7	182	10,490	5,124	19,500	0
Mar.	9.41	4.53	1	1,330	8	158	513	31,555	30,429	50,100	1,700
Apr.	7.51	5.10	29	614	5	173	416	24,768	29,301	70,900	4,560
May	9.14	5.74	116	1,010	3	321	583	35,833	27,223	69,000	392
June	9.35	6.11	116	1,020	7	362	585	34,792	35,751	65,700	5,990
July	9.49	6.97	124	1,019	8	519	723	44,479	42,569	70,700	8,673
Aug.	13.05		13	1,170	20	179	636	39,120	42,405	74,600	4,840
Sept.	8.30	6.21	12	1,745	17	360	537	31,966	28,124	63,100	2,230
Oct.	9.47	4.95	4	981	23	188	338	20,813	11,535	39,000	0
Nov.	4.97	4.19	4	204	30	113	145	8,622	6,555	21,000	0
Dec.			13	129	115	0	50.3	3,124	6,259	25,500	0
Yearly	10.05			1,170	0	399		299,428	267,405	541,610	47,397.4
	Meters		Cubic Meters per Second			Thousands of Cubic Meters					
	3.05			33.1	0	11.3		357,004	329,839	568,076	59,465

* Discharge measurement made on this day Ø Mean daily ! And other days

RIO GRANDE BELOW AMERICAN DAM AT EL PASO, TEXAS AND CD. JUAREZ, CHIHUAHUA

DESCRIPTION: Cableway, gravity well, and water-stage recorder located on the left bank of the river at latitude 31°46'35", longitude 106°31'20", and river mile 1,253.4 (2,017.1 km); 1.5 river miles (2.4 km) upstream from the International Dam, 3.1 river miles (5.0 km) upstream from the Paso del Norte Bridge between El Paso, Texas and Cd. Juarez, Chihuahua, and 0.6 river mile (1.0 km) downstream from the American Dam. The zero of the gage is 3,712.30 feet (1,131.51 m) above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 55 discharge measurements during the year and a continuous record of gage heights. Computations by shifting control methods. Records available: June 1938 through 1984.

REMARKS: Reservoirs, diversions, and drainage returns modify the river flow at this station. The operation of the American Dam began June 2, 1938. Part of the flow above the dam is diverted into the American Canal, and the remainder, including excess flood flows, passes below the dam.

EXTREME FLOWS FROM RECORDS: Momentary: Max. 11,300 second-feet (320 m³/sec) on September 14, 1958 with a gage height of 14.50 feet (4.42 m). Min. occasionally no flow.

Average Flow in Second-Feet (Cubic Meters per Second)

Daily:	Max. 6,040 (171)	May 20, 1942	Min. 0	Occasionally
Monthly:	Max. 4,830 (138)	May 1942	Min. 0	Occasionally
Yearly:	Max. 1,510 (42.8)	1942	Min. 13.8 (0.39)	1956

Mean Daily Discharge in Second-Feet 1984 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	4.6	* 4.1	* 4.6	175	145 *	141 *	172	174	226	0.1	2.7	2.7
2	5.0	4.2	4.6	176	142	165	171 *	184 *	208	.3	* 2.7	2.7
3	5.1	4.1	4.6	181 *	143 *	174	170	177	213	.3	2.7	2.7
4	* 5.7	4.2	4.2	174	144	181	168	417	205 *	130	2.7	2.7
5	5.9	4.2	4.2	174 *	141	188 *	174 *	1,050	198	* 11.8	2.7	2.7
6	5.9	4.1	4.2	178	141	177	171	440	193 *	4.4	2.7	2.7
7	5.9	4.1	4.2	176	138	177 *	175	467	184	2.6	2.7	2.7
8	5.9	4.2	4.2	171	144 *	184	180	279	182	2.2	2.7	2.7
9	6.2	4.1	3.9	166	144	173	176 *	240	187	1.5	2.7	2.7
10	6.5	4.3	4.2	170 *	146 *	178	181	426 *	187 *	1.5	2.7	2.7
11	5.9	3.8	3.9	177	134	173	171	173	214	1.9	2.7	2.7
12	5.9	4.0	3.9	188 *	127	171 *	184 *	164	98.3	1.2	2.7	2.7
13	6.2	5.0	4.6	183	128	176	171	255 *	6.4	.6	2.7	2.7
14	5.9	4.7	4.6	189	134	175 *	169	127	3.1	.3	2.7	138
15	5.4	4.9	4.6	179	130 *	175	180	195	6.0	.3	2.7	175
16	5.7	5.4	4.5	174	131	234	172 *	197 *	5.1	.1	2.7	189
17	5.7	4.8	4.6	180 *	132 *	248	175	192	4.9	0	2.7	168
18	5.7	5.0	4.2	181	122	169	172	183	4.8	0	2.7	148
19	5.7	5.5	5.4	184 *	120	268	178	182	4.6	0	2.7	133
20	6.2	5.2	5.8	138	118	180	160	183 *	4.4	0	2.7	138 *
21	5.2	5.1	5.0	187	122	148 *	171	192	4.2	0	2.7	158
22	5.7	5.6	5.4	133	126 *	174	166	192	4.0	.2	2.7	146
23	5.4	5.3	5.2	173	134	166	166 *	200 *	3.8	.2	2.7	185
24	5.4	6.2	8.3	172 *	145 *	168	168	201	4.0	.2	2.7	215
25	5.4	5.8	7.8	180	142	178	170	211	3.8	.7	2.7	187
26	4.2	* 5.8	* 99.6	184 *	138	174 *	162 *	229	3.9	10.6	2.7	166
27	4.4	* 6.4	150 *	195	137	176	176	203 *	1.9	4.1	2.7	151
28	4.1	5.9	160	176	133	173 *	178	181	1.2	3.2	2.7	163
29	4.1	5.5	176 *	167	130 *	178	243	188	.6	2.8	2.7	149
30	4.2	174	154	133	133	164	161 *	200	.8	2.7	2.7	147
31	3.9	177		132 *			177	227 *	3.1			200
Sum	163.0	141.5	1,058.4	5,341	4,175	5,407	5,408	7,929	2,367.8	186.9	81.0	2,991.1

Current Year 1984									Period 1939-1984			
Month	Extreme Gage Feet		Extreme Second-Feet			Average Second-Feet	Total Acre-Feet	Acre-Feet				
	High	Low	Day	High	Day			Low	Average	Maximum	Minimum	
Jan.	4.61	4.49	10	6.5	31	3.9	5.4	333	3,594	12,000	0	
Feb.	4.65	4.50	24	6.6	11	3.5	4.9	281	1,922	32,800	0	
Mar.	5.87	4.58	31	177	18	2.3	34.1	2,099	3,115	22,800	81.9	
Apr.	5.92	5.70	14	201	30	14.3	179	10,594	10,262	74,500	2,230	
May	5.79	5.55	10	151	19	11.3	135	5,283	15,161	300,300	25.2	
June	5.46	5.62	15	531	1	105	180	10,725	14,744	250,000	0	
July	6.72	5.78	29	376	20	148	174	10,727	14,161	155,000	357	
Aug.	10.20	5.58	10	2,130	14	45.0	255	15,727	13,595	114,000	37.5	
Sept.	6.37	4.51	1	249	30	.3	73.0	4,595	9,240	124,000	53.8	
Oct.	5.76	4.53	4	390	117	0	6.0	371	1,312	19,000	18.0	
Nov.	4.67	4.45	1	3.1	1	2	2.7	161	1,335	8,700	0	
Dec.	5.25	4.45	31	248	1	2	2.7	95.5	5,933	1,137	7,760	0
Yearly	10.20	4.45		2,130		0	95.3	69,930	30,933	1,093,553	10,001.1	
	Meters		Cubic Meters per Second			Thousands of Cubic Meters						
	3.11	1.35		51.7		0	2.73	96,257	110,993	1,348,893	12,336	

* Discharge measurement made on this day † Mean daily ‡ And other days

DIVERSIONS FROM THE RIO GRANDE ACEQUIA MADRE AT CD. JUAREZ, CHIHUAHUA

DESCRIPTION: Bridge for making discharge measurements, gravity well, and water-stage recorder located on the right bank of the canal at Cd. Juarez, Chihuahua, latitude 31° 45' 40", longitude 106° 30' 30", about 260 feet (80 m) downstream from the canal intake at the International Dam at Cd. Juarez, Chihuahua, which is located at river mile 1,251.8 (2,014.7 km) and 2.1 river miles (3.4 km) downstream from the American Dam at El Paso, Texas.

RECORDS: Flow records provided by Mexican Section. Records available: 1938 through 1984. These records, showing the water diverted by Mexico, do not necessarily reflect the quantities of water made available to Mexico in the bed of the river by the United States under the terms of the Convention of 1905. Such quantities of water are included in the record of "Rio Grande below American Dam at El Paso, Texas." See page 11 in this Water Bulletin.

REMARKS: In 1984 all of the 58,598 acre-feet (72,267,000 m³) tabulated below were distributed to land irrigated in the first unit under the canal.

EXTREME FLOWS FROM RECORDS: Momentary: Max. 480 second-feet (13.6 m³/sec) on July 21, 1944 with a gage height of 6.00 feet (1.83 m). Min. no flow during several months throughout the year.

Average Flow in Second-Feet (Cubic Meters per Second)

Daily:	Max. 339 (9.61)	May 10, 1942	Min. 0	Several months each year
Monthly:	Max. 253 (8.00)	May 1938	Min. 0	Several months each year
Yearly:	Max. 116 (3.28)	1942	Min. 9.2 (0.26)	1954

Mean Daily Discharge in Second-Feet 1984 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	0	0	193	159 *	172 *	203	197 *	157	0	0	0
2	0	0	0	191 *	159 *	198 *	182 *	180 *	150	0	0	0
3	0	0	0	193 *	160 *	201	182	177 *	179 *	0	0	0
4	0	0	0	200 *	160	196	140	179 *	162 *	0	0	0
5	0	0	0	195 *	160	196 *	187 *	151	149 *	0	0	0
6	0	0	0	196 *	158	192 *	180	153 *	139 *	0	0	0
7	0	0	0	195	158	192	170	177 *	143 *	0	0	0
8	0	0	0	190	161 *	188 *	181	160	183	0	0	0
9	0	0	0	192 *	165	189	178 *	177	139	0	0	0
10	0	0	0	201 *	165 *	191	195 *	177 *	139 *	0	0	0
11	0	0	0	193	153 *	192 *	197 *	177	147 *	0	0	0
12	0	0	0	195 *	145	188 *	208 *	177	64.3	0	0	0
13	0	0	0	202 *	145	188 *	217 *	176	0	0	0	0
14	0	0	0	198	147	190 *	189	175 *	0	0	0	0
15	0	0	0	192	151 *	190 *	188	175 *	0	0	0	0
16	0	0	0	183 *	146 *	181	183 *	172 *	0	0	0	0
17	0	0	0	192 *	150 *	180	180	160	0	0	0	0
18	0	0	0	196 *	137 *	180 *	176	143	0	0	0	0
19	0	0	0	199 *	143	180 *	181	137 *	0	0	0	0
20	0	0	0	204	135	170	170	149 *	0	0	0	0
21	0	0	0	210	144 *	176 *	188	159 *	0	0	0	0
22	0	0	0	202	145 *	190	164	158 *	0	0	0	0
23	0	0	0	200 *	142 *	188	182 *	172 *	0	0	0	0
24	0	0	0	202 *	144 *	185	180	160 *	0	0	0	0
25	0	0	0	197	147 *	190	180 *	141	0	0	0	0
26	0	0	40.6	201 *	145	190 *	185 *	131	0	0	0	0
27	0	0	171	201 *	147	196 *	183	144 *	0	0	0	0
28	0	0	182 *	190	141 *	197	151	144 *	0	0	0	0
29	0	0	189 *	190	142 *	194 *	156	168	0	0	0	0
30	0	0	187 *	184 *	147 *	189	160 *	156 *	0	0	0	0
31	0	0	194 *		146 *		184 *	149 *	0	0	0	0
Sum	0	0	963.6	5,877	4,647	5,649	5,600	5,051	1,751.3	0	0	0
Current Year 1984									Period 1938-1984			
Month	Average Rainfall Inches**		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet			
	1938-1984	1984	High		Low				Average	Maximum	Minimum	
	Day	Day	Day	Day								
Jan.	0.47	0.35		0	0	0	0	0	0	0		
Feb.	.39	0		0	0	0	0	0	0	0		
Mar.	.28	.24	31	200	11	0	31.1	1,911	1,274	6,482		
Apr.	.20	T	27	225	30	158	196	11,652	8,191	12,383		
May	.35	.47	10	168	19	127	150	9,219	8,845	17,380		
June	.67	2.76	16	208	17	45.9	188	11,206	8,504	15,700		
July	1.85	1.42	112	231	30	139	181	11,107	8,709	15,170		
Aug.	1.50	5.04	21	226	23	126	163	10,018	8,497	12,620		
Sept.	1.30	.47	10	221	113	0	58.3	3,475	4,315	12,380		
Oct.	.94	3.39		0	0	0	0	0	32.4	328		
Nov.	.35	.67		0	0	0	0	0	0	0		
Dec.	.51	1.50		0	0	0	0	0	0	0		
Yearly	8.81	16.31		231		0	80.5	58,588	48,367.4	83,930		
	Millimeters		Cubic Meters per Second				Thousands of Cubic Meters					
	224	414		6.53		0	2.28	72,267	59,663	103,511	8,207	

** Discharge measurement made on this day
 ** Average for valley floor in United States and Mexico from El Paso to Clint station

RIO GRANDE NEAR CLINT, TEXAS AND SAN AGUSTIN, CHIHUAHUA

DESCRIPTION: Cableway, gravity well, and water-stage recorder located on the left bank of the rectified channel of the Rio Grande at latitude 31°32'00", longitude 106°14'35", and river mile 1,226.9 (1,974.5 km); 0.7 river mile (1.1 km) downstream from the Riverside Canal Wasteway No. 2, about 4 miles (6.4 km) south southwest of Clint, Texas, and 27.1 river miles (43.5 km) downstream from the American Dam at El Paso, Texas. The zero of the gage is 3,608.99 feet (1,100.02 m) above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 19 discharge measurements during the first nine months of the year and a continuous record of gage heights. Computations by shifting control methods. Records available: August 17, 1938 through 1934. Records prior to 1976 were published under the title "Rio Grande - Island Station near Clint, Texas."

REMARKS: Reservoirs, diversions, and drainage returns modify the river flow at this station. The records for this station will be computed only during periods of flood flow.

EXTREME FLOWS FROM RECORDS: Momentary: Max. 7,050 second-feet (200 m³/sec) on September 14, 1958 with a gage height of 15.80 feet (4.82 m). Min frequently no flow.

Average Flow in Second-Feet (Cubic Meters per Second)

Daily:	Max. 6,140 (174)	May 19, 1942	Min. 0	Frequently
Monthly:	Max. 4,880 (138)	May 1942	Min. 0	Frequently
Yearly:	Max. 1,490 (42.2)	1942	Min. 0.3 (0.01)	1956

Mean Daily Discharge in Second-Feet 1984 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	69.2	2.2	2.2	1.1	2.0	17.9	1.2	2.5	2.7			
2	69.7	* 2.2	43.6	2.5	2.0	14.3	1.2	2.5	2.7			
3	68.2	2.1	59.6	2.0	2.0	10.8	1.2	* 2.5	2.7			
4	67.7	2.0	2.6	* 1.2	* 1.9	7.2	1.2	2.5	2.7			
5	* 60.3	1.9	* 2.6	1.3	1.8	3.6	1.2	1,020	* 2.7			
6	107	1.8	2.4	1.3	1.8	* .1	* 1.2	1,280	2.6			
7	60.0	1.7	2.2	1.4	1.7	.2	1.2	334	2.5			
8	33.6	1.6	2.1	1.5	1.6	.3	1.0	566	* 2.4			
9	12.4	1.5	1.9	1.6	1.5	.5	1.0	1,300	2.2			
10	8.6	1.4	1.8	1.6	1.5	.6	.9	1,050	* 2.1			
11	7.2	1.3	1.6	1.6	1.4	.7	.8	937	2.0			
12	6.3	1.2	1.4	1.7	1.4	.8	.7	950	1.9			
13	5.5	7.3	1.3	1.8	1.4	* 1.0	.6	800	1.7			
14	4.7	1.0	1.1	1.8	1.3	1.0	.5	346	1.6			
15	4.0	* .8	1.0	2.0	1.2	1.0	.4	78.1	1.5			
16	3.2	.9	* .8	4.0	* 1.2	152	.3	95.0	1.4			
17	2.4	1.0	.9	2.1	211	546	.2	43.1	1.2			
18	* 1.7	1.1	.9	* 2.6	60.7	295	* .1	2.7	1.1			
19	1.7	1.2	.9	2.1	64.1	986	.2	2.7	1.0			
20	1.7	1.3	.9	2.1	50.5	361	.4	2.7	* .9			
21	1.7	1.4	.9	2.1	57.0	246	.6	2.7	.9			
22	1.9	1.4	.9	2.1	53.4	39.5	37.4	2.7	.9			
23	1.8	1.6	.9	2.0	49.9	1.2	24.3	2.7	.9			
24	1.8	1.6	1.0	2.0	46.3	1.1	33.7	2.7	4.9			
25	1.9	1.7	1.0	2.0	42.8	1.1	82.3	2.7	3.3			
26	1.9	1.8	1.0	2.0	39.2	1.1	2.5	111	3.5			
27	1.9	1.9	1.0	1.9	35.6	1.1	2.5	183	1.0			
28	2.0	2.0	1.1	1.9	32.1	1.1	2.5	135	1.1			
29	2.0	2.1	2.8	27.2	28.5	1.2	2.5	2.7	1.1			
30	2.0		1.3	54.2	25.0	1.2	2.5	2.7	1.1			
31	2.1		1.2		21.4		2.5	2.7				
Sum	615.5	51.0	144.9	134.7	853.2	2,594.6	208.8	9,282.9	58.3			

Month	Current Year 1984						Period 1939-1984					
	Extreme Gage Feet		Extreme Second-Feet			Average Second-Feet	Total Acre-Feet	Acre-Feet				
	High	Low	Day	High	Day			Low	Average	Maximum	Minimum	
Jan.	9.86		5	159	118	Ø 1.7	19.9	1,221	3,553	11,900	0	
Feb.	9.06		13	60.0	15	Ø .8	1.8	101	2,238	37,000	0	
Mar.	10.01	7.00	2	173	16	.8	4.7	287	1,800	21,000	0	
Apr.	9.55	7.18	30	123	1	1.1	4.5	257	2,795	70,500	0	
May			17	Ø 211	115	Ø 1.2	27.5	1,692	7,694	299,800	0	
June	14.00		19	1,830	6	Ø 1.1	89.8	5,345	6,599	241,000	0	
July	9.90		25	155	18	Ø .1	6.7	414	6,853	118,500	0	
Aug.	14.09		9	1,890	1	Ø 2.5	299	18,412	6,368	99,400	0	
Sept.	7.08		5	15.1	20	Ø .9	1.9	116	5,978	119,200	0	
Oct.												
Nov.												
Dec.												
Yearly	Meters		Cubic Meters per Second			Thousands of Cubic Meters						

* Discharge measurement made on this day

Ø Mean daily

! And other days

RIO GRANDE NEAR ACALA, TEXAS AND PRAXEDES GUERRERO, CHIHUAHUA

DESCRIPTION: Cableway, gravity well, and water-stage recorder located on the left bank of the rectified channel of the Rio Grande at latitude 31°22'50", longitude 105°59'10", and river mile 1,206.7 (1,942.0 km); 0.8 river mile (1.3 km) downstream from the El Paso-Hudspeth County Line, 5.5 miles (8.9 km) northwest of Acala, Texas, about 8 miles (12.9 km) southeast of Tornillo, Texas, and 47.2 river miles (76.0 km) downstream from the American Dam at El Paso, Texas. The zero of the gage is 3,547.59 feet (1,081.31 m) above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 17 discharge measurements during the first nine months of the year and a continuous record of gage heights. Computations by shifting control methods. Records available: 1938 through 1984. Records prior to 1976 were published under the title "Rio Grande - County Line Station near Acala, Texas."

REMARKS: Reservoirs, diversions, and drainage returns modify the river flow at this station. The record for this station will be computed only during periods of flood flow.

EXTREME FLOWS FROM RECORDS: Momentary: Max. 6,340 second-feet (180 m³/sec) on May 19, 1942 with a gage height of 8.66 feet (2.64 m). Min. frequently no flow.

Average Flow in Second-Feet (Cubic Meters per Second)

Daily:	Max. 6,180 (175)	May 18, 1942	Min. 0	Frequently
Monthly:	Max. 4,920 (139)	May 1942	Min. 0	Frequently
Yearly:	Max. 1,720 (48.7)	1942	Min. 0	1956 & 1964

Mean Daily Discharge in Second-Feet 1984 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	34.5	3.9	9.9	73.0	14.7	5.3	18.9	27.1	50.3			
2	36.4	3.4	19.1	50.5	5.1	5.3	23.5	9.4	41.5			
3	89.2	2.6	45.4	5.0	6.1	7.4	20.0	3.6	32.6			
4	97.6	2.4	24.7	2.5	17.5	28.1	18.4	6.1	23.8			
5	90.6	2.2	15.0	2.7	17.9	6.3	15.8	120	14.9			
6	81.3	2.1	20.1	2.6	21.5	4.7	16.2	808	14.9			
7	54.1	2.0	13.5	5.0	20.5	4.1	15.9	473	14.9			
8	34.4	2.1	12.5	11.3	14.7	3.6	14.9	348	14.9			
9	30.1	2.4	11.5	52.6	13.5	3.3	13.4	553	14.9			
10	23.1	2.6	10.9	16.4	18.5	3.0	12.3	710	14.9			
11	18.0	2.6	10.0	2.4	15.6	2.8	11.7	584	14.9			
12	14.2	2.7	9.4	2.2	5.4	4.5	11.1	771	81.6			
13	11.0	3.0	8.9	2.1	5.2	3.9	10.1	535	77.7			
14	9.1	3.1	7.2	2.4	5.7	3.2	9.8	508	85.7			
15	11.4	2.7	5.5	7.6	4.3	3.5	8.2	244	81.6			
16	16.5	5.9	.8	11.1	4.4	159	7.3	234	83.0			
17	20.5	8.5	.4	2.6	18.6	295	6.7	298	81.6			
18	21.3	10.3	.6	2.1	109	430	5.8	184	54.1			
19	14.5	6.2	.9	2.3	88.0	500	5.0	159	35.9			
20	10.6	6.1	.5	2.4	153	618	3.9	96.3	16.2			
21	8.0	7.3	.3	2.6	129	539	3.9	57.0	16.2			
22	7.4	8.3	.7	2.3	33.9	182	2.5	60.6	16.2			
23	10.0	8.5	1.2	5.5	31.7	26.7	14.1	77.7	16.2			
24	7.2	8.4	1.4	2.9	11.9	20.4	14.7	90.2	14.7			
25	6.3	8.4	34.2	4.3	7.5	19.1	30.7	106	132			
26	5.8	3.6	37.5	3.5	9.8	17.8	47.1	164	162			
27	5.6	8.3	16.9	3.6	36.1	17.6	18.0	231	219			
28	5.1	9.3	39.9	11.7	55.9	16.9	33.7	251	213			
29	4.7	9.5	9.4	44.2	6.6	17.3	63.0	122	210			
30	4.5	2.0	77.3	7.3	5.4	18.1	131	79.0	227			
31	4.1		5.0		6.0		59.1	59.2				
Sum	787.1	154.4	375.3	421.7	394.0	2,955.9	655.3	8,095.7	2,199.5			

Month	Extreme Gage Feet		Extreme Second-Feet			Average Second-Feet	Total Acre-Feet	Acre-Feet				
	High	Low	High	Day	Low			Average	Maximum	Minimum		
	Jan.	0.45	-0.80	4	100	31	4.1	25.4	1,551	4,690	20,003	0
Feb.	-0.30	-0.90	17	23.0	7	2.0	5.3	306	3,751	47,909	0	
Mar.	.47	-.95	23	93.4	21	.3	12.1	744	3,345	33,900	0	
Apr.	.52	-.85	9	100	18	1.2	14.1	935	4,982	34,200	0	
May	1.11	-.82	21	204	15	3.4	23.8	1,773	9,585	303,000	0	
June	2.84	-.65	16	821	11	2.3	93.9	5,883	8,550	239,000	0	
July	1.06	-.67	30	185	22	2.5	21.5	1,321	9,047	140,000	0	
Aug.	3.24	-.34	12	1,030	5	5.0	261	15,058	9,053	123,000	0	
Sept.	1.28		128	239	5	0	14.9	73.3	4,363	11,269	140,000	0
Oct.												
Nov.												
Dec.												
Yearly	Meters		Cubic Meters per Second			Thousands of Cubic Meters						

* Discharge measurement made on this day † And other days 0 Mean Daily

RIO GRANDE AT FORT QUITMAN, TEXAS NEAR COLONIA LUIS LEON, CHIHUAHUA

DESCRIPTION: Cableway, gravity well, and water-stage recorder located on the left bank of the rectified channel of the Rio Grande at latitude 31°05'10", longitude 105°36'30", and river mile 1,173.2 (1,898.1 km); 1.5 river miles (2.4 km) downstream from Old Fort Quitman, 9 miles (14.5 km) southeast of Esperanza, Texas, and 17.5 miles (28.2 km) southeast of McNary, Texas. The zero of the gage is 3,450.57 feet (1,051.73 m) above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 26 discharge measurements during the year and a continuous record of gage heights. Computations by shifting control methods. Records available: 1889 through 1984.

REMARKS: Reservoirs, diversions, and drainage returns modify the river flow at this station.

EXTREME FLOWS FROM RECORDS:** Momentary: Max. 10,600 second-feet (300 m³/sec) October 5, 1946 with a gage height of 10.00 feet (3.05 m). Min. frequently no flow.

Average Flow in Second-Feet (Cubic Meters per Second)**

Daily:	Max. 5,890 (167)	May 19, 1942	Min. 0	Frequently
Monthly:	Max. 5,030 (142)	May 1942	Min. 0	Several months since 1951
Yearly:	Max. 1,750 (49.6)	1942	Min. 2.3 (0.07)	1965

Mean Daily Discharge in Second-Feet 1984 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	150	62.0	32.3	73.6	114	47.9	30.2	115	120	418	321	191
2	138	58.3	34.7	180	90.7	59.8	71.6	83.2	125	415	302	195
3	143	60.1	42.7	189	72.6	58.9	90.2	76.4	125	417	288	192
4	168	53.0	104	106 *	48.7	59.2	114	73.1	125	408	271	192
5	152 *	46.6	96.2	61.4	56.7	65.1	82.0	83.0	122 *	411	254	196 *
6	125	45.6	62.2	53.3	59.3	71.4	55.4	413	123	425	242	190
7	115	41.6	75.4	54.8	51.0	58.1	36.5	798	121	428	231 *	187
8	135	39.3	73.1	64.9	49.2	63.8	40.1	534	120	413	223	191
9	96.3	38.5	72.3	93.5	58.0	60.8	35.3	784 *	118	405	207	172
10	86.4	37.5	55.1	132	40.4	57.8	34.8	1,260	117	374	192	196
11	75.8	35.4	54.6	115	34.5	56.0	27.7	1,580 *	117	350	177	200
12	79.7	32.9	33.3	86.3	32.8	134	32.9	1,630	181	336	160	193
13	85.5	31.6	33.4	75.8	30.7	47.7	46.5	1,730	179	314	146	214
14	75.7	32.5	30.2	72.7	31.3	37.7	20.9	1,310	139	305	145	246
15	61.7	44.5	38.0	86.8	28.6	47.4	20.7	1,100	120	294	137	273
16	58.6	36.7	35.6	95.0	25.1	448	20.6	994	115	286	118	371
17	68.7	34.2	33.3	81.6	32.6	164	21.3	990	116	283	129	277
18	79.8	59.3	36.9	65.5	42.3	476	20.3	677	117	276	179	257
19	77.2	64.8	34.0	54.7	110	606	20.5	335	117	150 *	186	265 *
20	77.7	54.2	32.5	43.0	192	1,120	20.9	214	120 *	145	185	254
21	73.9	51.6	36.7	65.8	712	973	23.7	156	122	140	193 *	241
22	77.3	49.2	29.5	73.7	407	1,010	26.1	138	126	135	201	257
23	77.8	49.7	37.9	57.0	126	707	25.1	143	134	131	201	249
24	76.9	51.3	44.2	60.7	126	260	25.7	140	152	180	205	250
25	76.0	49.8	36.0	49.0	88.2	184 *	23.9	121	193	197	209	227
26	68.5	41.1	104	45.7	67.1	80.3	32.5	148	203	271	205	231
27	66.5	40.6	116	42.1	58.7	55.4	40.9	256	209	340	213	215
28	74.7	44.6	89.5	43.9	144	57.9	58.1	453	328	345	186	198
29	63.9	35.6	134	57.5	141	44.5	56.1	471	420	351	213	191
30	59.9		87.1	132	61.1	55.5	65.4	276	410	341	187	218
31	56.2		66.0		40.5		116	155		335		195
Sum	2,310.7	1,321.1	1,790.7	2,403.3	3,182.1	7,197.3	1,390.9	17,241.7	4,939	9,621	6,106	6,934

Month	Extreme Gage-Feet		Extreme Second-Feet			Average Second-Feet	Total Acre-Feet	Acre-Feet			
	High	Low	High	Low	Average			Maximum	Minimum		
	Day	Day	Day	Day	Day	Day	Day	Day			
Jan.	5.79	5.03	4	171	31	55.2	90.7	5,575	5,673	20,900	0
Feb.	5.32	4.73	19	89.0	13	31.6	45.6	2,520	4,634	50,100	0
Mar.	5.63	4.68	29	173	22	29.5	57.3	3,552	3,752	38,900	0
Apr.	5.86	4.78	3	233	26	33.3	90.1	4,767	4,683	77,000	0
May	6.88	4.66	21	780	16	24.2	103	6,312	10,439	309,000	0
June	9.45	4.74	16	2,190	14	11.1	240	14,276	9,465	240,000	0
July	5.60	4.55	31	154	18	19.0	44.9	2,759	10,587	140,000	3.8
Aug.	9.93	5.10	11	2,193	4	69.6	555	34,193	11,887	127,000	16.7
Sept.	6.55	5.77	29	431	16	115	161	9,598	15,162	147,000	0
Oct.	5.55	5.90	7	423	22	130	310	19,033	11,744	56,000	0
Nov.	6.41	5.92	1	321	17	97.6	204	12,111	7,477	24,500	0
Dec.	5.49	5.74	16	371	10	130	224	13,753	7,508	31,000	0
Yearly	9.93	4.55		2,190		11.1	177	123,604	103,011	1,270,400	1,662.3
Yearly	Meters		Cubic Meters per Second			Thousands of Cubic Meters					
	3.04	1.39		62.0		3.31	5.01	158,630	127,052	1,507,038	2,950

** Period 1924-1934

* Discharge measurement made on this day

RIO GRANDE NEAR CANDELARIA, TEXAS AND SAN ANTONIO DEL BRAVO, CHIHUAHUA

DESCRIPTION: Cableway, gravity well, and digital recorder located on the left bank of the Rio Grande at San Antonio Diversion Dam, latitude 30°10'30", longitude 104°41'10" and river mile 1,038.8 (1,671.8 km), 0.5 river mile (0.8 km) upstream from Capote Creek and about 2.5 miles (4.0 km) north of Candelaria, Texas and San Antonio, Chihuahua. The zero of the gage is 2,857.96 feet (871.11 m) above mean sea level, U.S.C. & G.S. datum.

RECORDS: Based on 30 discharge measurements during the year and a continuous record of gage heights. Computations by shifting control methods. Records available: November 19, 1975 through 1984.

REMARKS: Reservoirs, diversions, and drainage returns modify the flow at this station. An auxiliary well, located 300 feet (91 m) upstream, is used to record extreme low flows. Prior to June 1979 the zero of the gage was 2,857.84 feet (871.07 m) above mean sea level, U.S.C. & G.S. datum.

EXTREME FLOWS FROM RECORDS: Momentary: Max. 19,800 second-feet (561 m³/sec) on September 30, 1978 with a gage height of 10.86 feet (3.31 m). Min. frequently no flow.

Mean Daily Discharge in Second-Feet 1984 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	117	71.4	48.1	56.4	22.4	23.7	550	43.4	225	236	351	278
2	121	* 69.1	* 46.5	65.6	21.1	5.8	658	* 35.0	243	239	420	255
3	122	68.0	45.1	71.5	18.4	19.6	717	36.9	292	251	470	240
4	121	* 66.4	45.7	* 71.6	21.5	42.3	529	47.6	327	318	495	229
5	120	64.5	44.2	66.3	29.7	34.4	397	* 44.8	316	* 419	510	* 232
6	124	62.6	38.8	63.2	40.8	25.3	448	46.0	323	488	502	238
7	133	62.9	38.7	72.3	43.4	20.9	182	47.2	265	502	480	238
8	140	62.4	43.0	78.2	36.9	16.7	159	60.3	155	577	414	233
9	143	57.5	56.1	82.1	30.9	16.6	165	143	134	617	350	228
10	147	54.7	64.5	72.0	26.1	17.1	157	421	117	627	318	227
11	148	53.7	64.8	56.6	25.7	30.3	180	1,260	103	629	* 306	226
12	143	45.7	67.5	50.4	25.1	30.1	420	2,560	96.0	539	288	223
13	156	45.7	68.4	51.7	21.4	176	* 432	1,750	* 94.8	557	277	227
14	169	* 45.3	67.1	53.9	21.7	212	235	912	96.2	551	272	225
15	156	44.7	60.5	64.1	20.6	151	165	3,710	98.4	540	272	222
16	140	40.8	58.4	67.4	121	175	119	4,360	99.2	511	268	209
17	128	39.8	48.8	66.3	279	237	80.3	1,930	97.9	460	264	198
18	117	36.6	43.2	64.4	139	* 262	* 45.5	1,250	100	341	* 259	197
19	107	35.5	34.5	* 59.0	68.1	1,990	32.5	942	109	* 276	254	205
20	98.0	39.0	38.0	59.8	59.3	607	26.8	773	115	243	254	216
21	88.5	38.5	* 30.5	59.2	52.2	720	18.5	706	116	225	255	* 231
22	84.2	35.7	33.0	59.3	46.5	339	14.3	705	115	219	247	263
23	81.5	41.7	36.3	57.7	45.2	234	54.4	719	115	233	248	298
24	80.2	47.2	35.1	47.5	49.5	208	21.7	714	118	247	324	337
25	80.2	49.4	35.5	32.0	55.0	215	63.5	680	119	246	435	327
26	79.1	48.1	37.9	35.1	60.6	219	* 132	612	115	250	378	294
27	78.0	47.4	36.1	37.8	66.0	225	47.5	517	111	* 248	347	260
28	73.2	45.9	38.5	39.6	66.7	376	55.0	415	135	250	370	231
29	72.5	48.1	43.1	28.8	65.1	552	87.8	328	227	242	343	220
30	75.4		39.7	26.0	57.1	562	52.1	258	* 157	248	299	216
31	73.0		45.3	48.6	48.6		46.5	227		283		228
Sum		1,468.3		1,715.8		7,742.8		26,353.2		11,672		7,452
	3,515.8		1,432.9		1,684.6		6,301.4		4,734.5		10,271	
Current Year 1984									Period Dec. 1975-1984			
Month	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet			
	High	Low	Day	High	Day	Low			Average	Maximum	Minimum	
Jan.	4.68	4.08	14	172	31	70.2	113	6,973	4,221	7,415	0	
Feb.	4.09	3.69	1	71.5	22	33.5	50.6	2,912	2,171	3,395	0	
Mar.	4.96	3.19	22	244	22	11.6	46.2	2,842	1,470	2,842	0	
Apr.	4.15	3.59	9	82.9	30	23.0	57.2	3,403	1,496	4,836	8.4	
May	7.14	3.37	17	1,390	16	17.0	54.3	3,341	1,876	5,031	0	
June	8.88		19	5,560	2	5.8	258	15,358	4,057	15,358	143	
July	7.88		12	2,360	22	14.3	203	12,499	3,792	12,499	79.1	
Aug.	9.32	3.76	16	5,230	2	33.3	850	52,271	11,608	52,271	611	
Sept.	5.47	4.70	4	334	19	93.2	158	9,391	20,949	135,232	362	
Oct.	6.10	4.96	11	706	22	216	377	23,151	14,712	57,823	435	
Nov.	5.53	4.83	5	514	23	245	342	20,372	7,416	20,372	0	
Dec.	5.18	4.78	24	341	17	193	240	14,781	6,140	14,781	0	
Yearly	9.32			5,560		5.8	230	167,294	79,938	214,936	15,148	
	Meters		Cubic Meters per Second				Thousands of Cubic Meters					
	2.84			157		0.16	6.51	206,354	98,602	265,124	18,695	

* Discharge measurement made on this day

Ø Mean daily

RIO GRANDE ABOVE RIO CONCHOS NEAR PRESIDIO, TEXAS AND OJINAGA, CHIHUAHUA

DESCRIPTION: Cableway, bubbler gage, and digital water-stage recorder located on the left bank at latitude 29°35'15", longitude 104°27'05", and river mile 963.7 (1,551.0 km); 5.0 river miles (8.0 km) upstream from the international highway bridge between Presidio, Texas and Ojinaga, Chihuahua and 2.4 river miles (3.8 km) upstream from the Rio Conchos. The zero of the gage is 2,573.14 feet (784.29 m) above mean sea level, U.S.C. & G.S. datum.

RECORDS: Based on 57 discharge measurements during the year and a continuous record of gage heights. Computations by shifting control methods. Records available: 1889 through 1984.

REMARKS: Reservoirs, diversions, and drainage returns modify the river flow at this station. Prior to 1978 the zero of the gage was 2,576.56 feet (785.37 m) above mean sea level, U. S. C. & G. S. datum.

EXTREME FLOWS FROM RECORDS: Momentary: Max. 14,000 second-feet (396 m³/sec) on June 14, 1905. Highest flow recorded since 1924 was 5,160 second-feet (146 m³/sec), with a gage height of 10.57 feet (3.22 m), on May 26, 1942. Min. frequently no flow.

Average Flow in Second-Feet (Cubic Meters per Second)**

Daily:	Max. 13,700 (388)	June 13 & 14, 1905	Min. 0	Frequently
Monthly:	Max. 10,150 (287)	June	Min. 0	Frequently
Yearly:	Max. 1,970 (55.8)	1907	Min. 1.3 (0.04)	1964

Mean Daily Discharge in Second-Feet 1984 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	126	110	* 54.1	30.5	20.5	* 37.7	274	102 *	414	156	235	311
2	123	101	85.7	29.6	16.6	35.7	300	94.1	266	177 *	229 *	307
3	120 *	112	90.9	* 27.4	17.2	253	321 *	65.3	377	189	251	292
4	126	119	93.7	30.8	24.9	351	339	54.6	438	192	281	274 *
5	135	85.3	90.9	48.2	35.2	111 *	359	49.7	331 *	208	311 *	258
6	135	* 80.3	* 83.4	49.6	37.4	81.9	434	57.9	294	232	334	248
7	135	82.1	74.9	67.4	* 37.0	77.7	524	* 76.9	303	246	358	247
8	135	83.4	76.7	80.6	42.4	65.4	565	75.5	317	262	374	247
9	145 *	78.5	64.7	* 75.4	30.8	48.0	496 *	118	329	282 *	398	253
10	133	77.8	58.1	75.1	27.8	41.5	344	169	304 *	311	390	257 *
11	141	71.8	64.7	55.4	38.6 *	32.1	224	557	253	347	369	254
12	136	88.5	* 82.5	53.2	28.3	38.5	230	446 *	224	376	331	250
13	128	* 68.1	61.3	42.6	44.2	36.7	197	446 *	200	378	301	251
14	123	58.1	61.2	49.1	* 37.1	72.6	175	519	172	374	276	245
15	131	57.2	59.7	80.5	15.2	106	185	667	154	414	261	252
16	137	58.8	59.9	90.3	45.3	144	198	707	151	485	251 *	235
17	153 *	54.2	59.7	* 59.7	32.9	491	145 *	777 *	154 *	461 *	248	226
18	143	48.0	55.0	58.2	50.3	639 *	130	859	157	446	252	222 *
19	138	40.7	59.1	51.1	42.4	787	106	954	143	417	256 *	217
20	118	49.6	* 57.4	55.1	47.0	757	101	1,030	136	402	247	213
21	107	* 56.1	50.4	55.6	* 49.7	479	87.8	1,210 *	135	359	235	210
22	102	48.4	43.1	70.5	46.4	452	246	1,280 *	138	323 *	233	218
23	135 *	42.1	34.5	* 68.3	26.7	525	* 97.8	1,210	142	290	228	224
24	90.0	43.0	41.2	44.5	24.5	581	75.1	1,090	138 *	276	320	235 *
25	94.3	50.0	37.3	28.1	38.7	524 *	174	997	183	272	270	253
26	89.0	58.0	* 40.4	22.7	23.0	363	93.4	947	313	343	273	268
27	99.5	57.8	30.1	20.2	30.5	246	74.5	846	153	327	308 *	274
28	95.5	* 57.7	32.4	22.7	29.7	223	85.7	712 *	192	308	319	282
29	102	55.7	28.9	33.9	* 34.9	195	118	591	144	239	327	276
30	105	55.7	25.1	* 16.6	35.2	292	113	685	141	273	317	260
31	102 *	28.4			35.6		94.7	589	263			262 *
Sum		2,003.2		1,512.9		8,091.8		13,075.0		9,689		7,821
	3,758.3		1,735.4		1,046.0		6,917.0		6,796		8,783	

Month	Current Year 1984						Period 1938-1984				
	Extreme Gage Feet		Extreme Second-Feet			Average Second-Feet	Total Acre-Feet	Acre-Feet			
	High	Low	High	Day	Low			Average	Maximum	Minimum	
Jan.	2.83	3.32	17	159	26	81.1	121	7,454	5,237	24,400	0
Feb.	2.68	1.99	4	131	24	32.7	59.1	3,973	4,158	40,800	0
Mar.	2.48	1.81	5	96.8	27	22.1	57.6	3,541	2,974	39,100	0
Apr.	2.45	1.71	16	101	30	10.5	50.4	3,001	2,317	41,600	0
May	2.53	1.59	16	110	15	11.8	33.7	2,075	7,217	240,000	0
June	4.96	1.85	20	818	12	23.0	270	16,050	8,001	216,000	0
July	4.77	2.05	25	752	24	64.5	223	13,720	10,389	156,000	0
Aug.	5.24	2.09	22	1,300	5	43.5	583	35,853	11,434	133,000	0
Sept.	5.00	2.69	26	1,160	21	124	227	13,480	15,276	151,000	0
Oct.	4.20	2.74	15	492	1	153	313	19,218	14,114	105,000	0
Nov.	4.03	3.18	24	460	123	225	293	17,421	5,352	34,500	0
Dec.	3.54	3.06	1	315	21	209	252	15,513	5,730	30,900	0
Yearly	5.24	1.59		1,300		10.5	208	151,299	92,699	1,176,700	951.8
Yearly	Meters		Cubic Meters per Second			Thousands of Cubic Meters					
	1.90	0.48	35.3	0.30	5.89	186.624	114.342	1,451,459	1,174		

** Period June 1900-March 1914; September 1919-March 1920; and 1924-1984

! And other days

* Discharge measurement made on this day

RIO CONCHOS NEAR OJINAGA, CHIHUAHUA

DESCRIPTION: Cableway, gravity well, and water-stage recorder located on the right bank at latitude 29°34'55", longitude 104°25'50", 0.6 river miles (1.0 km) from the confluence with the Rio Grande, 2.5 miles (4 km) northwest of Ojinaga, Chihuahua, and 3.7 miles (6 km) northwest of Presidio, Texas. This stream enters the Rio Grande at river mile 961.4 (1,547.2 km), 11.6 river miles (18.7 km) upstream from the "Rio Grande below Rio Conchos" Gaging Station. The zero of the gage is 2,560.37 feet (780.40 m) above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 165 discharge measurements during the year, 163 by the Mexican Section and 2 by the United States Section of the Commission, and a continuous record of gage heights. Computations by shifting control methods. Records available: 1895 through 1984. Prior to April 4, 1954, flow records were determined from records of the Rio Grande at stations located upstream and downstream from the Rio Conchos confluence.

REMARKS: Reservoirs, diversions, and drainage returns modify the river flow at this station. La Boquilla Reservoir, La Colina Reservoir, La Rosetilla Reservoir, and Luis L. Leon Reservoir are located 252 (405), 244 (393), 183 (302), and 114 (183) river miles (km), respectively, upstream from this station. Francisco I. Madero Reservoir is located on the Rio San Pedro, a tributary which enters the Rio Conchos 176 river miles (283 km) upstream from this station. Power generation facilities: La Boquilla 14,647 kw., La Colina 3,620 kw., La Rosetilla 5,150 kw., Francisco I. Madero and Luis L. Leon, none. The station was relocated on January 20, 1978 incident to the Rio Grande channel rectification in the Presidio-Ojinaga area.

EXTREME FLOWS FROM RECORDS: Momentary: Max. 162,000 second-feet (4,590 m³/sec), on September 11, 1904.

Average Flow in Second-Feet (Cubic Meters per Second)**

Daily:	Max. 452,600 (#1,490)	Oct. 1, 1978	Min. 23.0 (0.65)	Dec. 19, 1973
Monthly:	Max. 10,703 (302)	Oct. 1978	Min. 57.9 (1.64)	Feb. 1968
Yearly:	Max. 2,340 (66.4)	1978	Min. 491 (13.9)	1983

Mean Daily Discharge in Second-Feet 1984 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	216	611 *	403	237	270	604 *	2,740	1,200	1,970	978 *	399	403
2	228 *	562	396 *	214 *	274 *	600	2,560 *	1,200 *	1,870	1,120	338 *	406
3	232	547 *	388 *	182	218	1,370	2,400	1,150 *	1,970 *	1,270 *	319	406 *
4	230 *	583	388	151 *	199 *	1,140 *	2,250 *	1,110	1,420	1,320	321	403
5	223	643	381 *	145 *	214	710	2,660	1,070 *	1,090 *	1,350 *	335 *	388 *
6	216 *	689 *	374	188	245	470 *	2,220 *	999	953	1,360	341	385
7	203	696	357	205	290 *	225	1,610	1,150	897 *	1,320	322 *	371 *
8	197	664 *	347	186	313	292	1,470	1,390	840	1,250 *	357	371
9	252 *	646	357	189 *	322 *	238 *	1,310	1,170 *	805	1,740	347 *	371
10	214	664 *	341	175	360	213	1,150	2,060	763 *	1,200 *	342	367 *
11	204 *	657	336	172 *	417 *	212 *	1,050	4,340	727 *	1,150	335	367
12	287	671	347 *	154	441	883	1,040	3,850	713	1,610 *	341 *	374 *
13	519 *	660 *	341	138 *	470	1,400 *	1,020 *	1,440 *	735	1,050	310	385
14	583	632	333 *	129	533 *	1,620	975	788	742 *	1,020	324 *	410 *
15	593	607 *	307	231	544	336 *	953	2,220 *	724	999 *	313	897
16	607 *	600	297 *	268 *	844 *	456	886	3,340 *	706	968	320 *	484
17	586	576 *	284	273	879 *	3,740 *	805	4,200 *	703	911 *	338	431 *
18	558 *	562	304	293 *	1,290 *	11,200 *	763 *	3,920	657	696	339	417
19	554	551	308 *	269 *	717	4,980 *	689 *	3,960	671 *	600	360 *	413 *
20	544 *	565 *	296	254	657	5,620 *	657 *	4,170 *	706	593	353	417
21	530	547	274 *	212	639 *	1,490 *	650	4,100	717 *	593 *	350 *	413 *
22	533	551	246 *	204	604	2,430 *	1,510	4,130	731	547 *	346	392
23	547 *	540 *	273 *	190 *	558 *	2,920	985	4,240	742	501	344 *	388 *
24	547	537 *	301	151	530	3,230	675	4,200 *	749 *	452 *	848	392
25	533 *	512	306	127 *	558 *	3,570 *	1,150 *	4,240	1,010	459	788	367
26	523	526	321 *	120	562	3,350 *	826 *	4,200	5,400 *	629 *	463 *	360 *
27	530 *	480 *	300	113 *	565	2,980 *	1,070 *	4,030 *	1,340	498	403	360
28	533	470	273 *	113	558 *	2,000 *	1,190	3,810	1,200 *	470 *	403 *	347 *
29	537	441 *	245	278	537	2,970 *	1,230	3,470 *	982	456	403	341
30	526	235 *	343 *	689 *	2,970	2,970	1,260	2,920	848	427	399 *	341
31	590 *	217		586			1,220	2,410 *		413 *		357 *
Sum		16,990		5,904		64,219		86,477		27,950		12,524
	13,175		9,876		15,883		40,974		33,381		11,501	

Month	Current Year 1984							Period 1968-1984				
	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet			
	High	Low	Day	High	Day	Low			Average	Maximum	Minimum	
Jan.	3.15	2.00	31	671	12	173	424	26,136	36,087	131,293	11,374	
Feb.	3.18	2.79	7	735	29	441	586	33,639	34,181	124,386	3,336	
Mar.	2.76	2.10	1	406	31	208	319	19,592	50,653	201,219	4,171	
Apr.	3.02	1.74	29	614	127	113	197	11,707	45,375	89,875	5,565	
May	5.64	1.97	18	2,500	3	166	512	31,490	52,275	123,749	10,932	
June	13.55	2.26	18	13,800	7	185	2,140	127,354	54,452	139,972	6,008	
July	6.92	2.72	5	4,270	21	607	1,320	81,301	60,644	154,562	16,654	
Aug.	8.76	3.15	11	5,900	15	565	2,790	171,520	100,288	243,660	31,728	
Sept.	12.47	2.72	26	11,800	18	646	1,110	66,235	152,265	468,680	17,892	
Oct.	5.87	2.56	9	2,950	31	396	901	55,462	110,107	655,967	16,883	
Nov.	4.89	2.17	24	1,890	2	200	385	22,809	44,067	137,415	7,484	
Dec.	4.56	2.36	15	1,640	30	316	403	24,840	28,804	65,969	7,383	
Yearly	13.55	1.74		13,800		113	925	672,145	769,198	1,698,395	356,533	
	Meters		Cubic Meters per Second				Thousands of Cubic Meters					
	4.13	0.53		392		3.20	26.2	829,081	948,795	2,094,945	439,780	

** Period 1968-1984

* Discharge measurement made on this day

! And other days

‡ Estimated

ALAMITO CREEK NEAR PRESIDIO, TEXAS

DESCRIPTION: Gravity well and water-stage recorder located on the left bank 300 feet (91.4 m) upstream from the highway bridge on Farm-to-Market Road 170 at latitude 29°31'25", longitude 104°17'15", about 2,000 feet (610 m) from the confluence with the Rio Grande, and about 6 miles (9.7 km) southeast of Presidio, Texas. This stream enters the Rio Grande near the lower end of the Presidio Valley at river mile 950.1 (1,529.1 km), 8.6 river miles (13.8 km) downstream from the international highway bridge between Presidio, Texas and Ojinaga, Chihuahua. Measurements of high flows are made from the highway bridge. The zero of the gage is 2,541.61 feet (774.63 m) above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 61 discharge measurements during the year at low and medium flows, a high flow rating curve determined by slope-area calculations, and a continuous record of gage heights. Computations by shifting control methods. Records available: 1932 through 1984.

REMARKS: A small irrigation reservoir (San Esteban) 10.5 miles (16.9 km) south of Marfa, Texas and irrigation diversions below the reservoir modify the flow of this spring-fed creek. Backwater from the Rio Grande begins to affect the station record when the flow at the station on the Rio Grande below Rio Conchos reaches about 35,000 second-feet (991 m³/sec).

EXTREME FLOWS FROM RECORDS: Momentary: Max. 56,400 second-feet (1,600 m³/sec), determined by slope-area calculations, on September 2, 1962, with a gage height of 13.54 feet (4.13 m). Min. 0.1 second-foot (0.003 m³/sec) occasionally.

Average Flow in Second-Feet (Cubic Meters per Second)

Daily:	Max. 12,400 (351)	Sept. 21, 1974	Min. 0.1 (0.003)	Occasionally
Monthly:	Max. 998 (28.3)	Sept. 1974	Min. 0.2 (0.005)	July 1980
Yearly:	Max. 97.1 (2.75)	1974	Min. 3.2 (0.09)	1982

Mean Daily Discharge in Second-Feet 1984 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1.1	1.2	* 1.1	0.8	0.5	* 0.7	0.9	* 1.0	1.1	1.4	* 1.2	1.5
2	1.2	1.2	1.1	.8	.6	.8	.9	1.0	1.1	* 1.5	* 1.2	1.5
3	* 1.2	1.1	1.1	* .8	.6	4.3	* 1.0	.9	1.1	1.4	* 1.3	1.5
4	1.2	1.1	1.0	.8	.6	21.6	1.3	.9	* 1.1	1.4	* 1.3	* 1.5
5	1.2	1.1	1.0	.8	.6	* 9.9	1.3	.9	1.1	1.4	* 1.3	1.4
6	1.2	* 1.1	* 1.0	.8	.6	2.9	12.7	.9	1.1	1.3	1.3	1.4
7	1.2	1.1	1.0	.9	* .5	2.4	.7	423 *	1.1	1.2	1.3	1.4
8	1.2	1.1	1.1	.9	.5	2.0	.6	141	1.1	1.2	1.2	1.4
9	* 1.2	1.1	1.2	* .9	.5	1.5	* .6	228	1.2	* 1.2	1.2	1.4
10	1.2	1.0	1.2	.9	.6	1.0	.5	86.2	* 1.2	1.1	1.2	* 1.3
11	1.2	1.0	1.2	.8	.5	* .6	.7	27.8	1.1	1.1	1.2	1.3
12	1.2	1.0	* 1.3	.8	.5	3.7	.7	1.6	1.1	1.1	1.2	1.4
13	1.2	* 1.0	1.3	.8	.6	2,480	.7	* 1.6	1.1	1.1	1.1	1.4
14	1.3	1.0	1.2	.8	.6	374 *	.8	1.7	1.1	1.1	* 1.1	1.4
15	1.3	1.1	1.2	.3	* .6	190 *	.8	154	1.1	1.0	1.1	1.4
16	1.3	1.1	1.2	.7	2.5	51.4	.8	2.0	1.0	1.0	1.1	1.4
17	* 1.3	1.1	1.1	* .7	* 14.4	975 *	* .8	* 35.3	1.0	* 1.0	1.1	1.4
18	1.3	1.1	1.1	.6	72.8	274	.9	4.1	* 1.0	1.0	1.1	1.4
19	1.3	1.2	1.0	.6	.8	513 *	.9	1.4	1.0	1.0	* 1.1	1.4
20	1.2	1.2	* 1.0	.6	.6	203	.9	1.3	1.0	1.0	1.0	1.4
21	1.2	* 1.2	1.0	.5	* .3	27.9	.9	* 1.2	1.0	1.0	1.1	1.4
22	1.2	1.2	1.0	1.4	.3	419	.9	1.2	1.0	* 1.0	1.2	1.4
23	* 1.2	1.2	.9	* .4	.4	28.9	* .9	1.2	1.1	1.0	1.3	1.4
24	1.2	1.2	.9	.4	.4	7.5	.9	1.1	* 1.1	1.1	1.4	* 1.4
25	1.2	1.1	.9	.5	.4	* 1.7	1.0	1.1	2.3	1.1	2.6	1.4
26	1.2	1.1	* .9	.5	.5	1.0	.8	1.1	102	1.1	* 1.3	1.4
27	1.2	1.1	.9	.6	.5	1.1	* 24.6	1.1	1.5	1.1	* 1.6	1.5
28	1.2	* 1.1	.9	.6	.6	90.8	.7	* 1.1	1.4	1.2	1.6	1.5
29	1.2	1.1	.9	.7	* .6	* 13.7	2.7	1.1	1.4	1.2	1.6	1.5
30	* 1.2	.9	* .7	.6	.6	3.2	1.0	1.1	1.4	1.2	1.6	1.6
31	1.2	.8	.8	.7	.7		1.0	1.1	1.2	1.2	* 1.6	1.6
Sum	37.7	32.2	32.4	20.9	105.1	5,811.6	64.0	1,178.0	135.9	35.7	38.9	44.3

Month	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet				
	High	Low	High		Low				Average	Maximum	Minimum		
			Day	Day	Day	Day							
Jan.			114	0	1.3	1	0	1.1	1.2	74.8	133	273	46.4
Feb.			1	0	1.2	110	0	1.0	1.1	63.9	180	3,120	41.5
Mar.			112	0	1.3	31	0	.8	1.0	54.3	151	1,018	46.4
Apr.			17	0	.9	122	0	.4	.7	41.5	265	3,630	40.3
May	7.59		18	1	1,220	121	0	.3	3.4	293	886	8,520	34.7
June	11.50	5.26	13	30	709	11	3	.6	194	11,527	1,921	12,953	24.2
July	5.87	5.20	27	350	11	3	.3	2.1	127	1,227	2,947	18,500	9.5
Aug.	8.55	6.93	7	4,260	13	0	.9	33.0	2,707	3,029	16,330	49.0	
Sept.	7.21		26	525	116	0	1.0	4.5	2,707	4,479	59,380	37.1	
Oct.	5.16		25	2.7	115	0	1.0	1.2	1,722	1,722	19,200	36.9	
Nov.	5.25		25	6.5	20	0	1.0	1.3	71.2	192	2,554	35.7	
Dec.	6.16		30	2.7	110	0	1.3	1.4	87.9	140	408	39.3	
Yearly	11.60			30,700		0.3	20.6		14,949.4	16,045	70,273.9	2,319.9	
	Meters		Cubic Meters per Second				Thousands of Cubic Meters						
	3.54		969		0.01	0.58		13,440	19,791	35,683	2,951.8		

* Discharge measurement made on this day 0 Mean daily ! And other days

RIO GRANDE BELOW RIO CONCHOS NEAR PRESIDIO, TEXAS AND OJINAGA, CHIHUAHUA

DESCRIPTION: Cableway, bubbler gage, concrete control weir, water-stage recorders (graphic and digital), and binary decimal transmitter located on the left bank at latitude 23° 31' 10", longitude 104° 17' 10", and river mile 949.8 (1,528.5 km); 0.4 river mile (0.6 km) downstream from Alamito Creek and 9.0 river miles (14.4 km) downstream from the international highway bridge between Presidio, Texas and Ojinaga, Chihuahua. The zero of the gage is 2,532.00 feet (771.75 m) above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 67 discharge measurements during the year, 66 by the United States Section and 1 by the Mexican Section of the Commission, and a continuous record of gage heights. Computations for high flows by shifting control methods. Low and medium flow computations based on a stable control weir rating curve defined by meter measurements. Records available: 1955 through 1934. Records are also available from 1896 through June 13, 1932 for a station located about 12.1 river miles (19.5 km) downstream from the Rio Conchos and 1.3 miles (2.1 km) upstream from Alamito Creek; and from June 14, 1932 through 1954 for a station about 2.0 river miles (3.2 km) downstream from the Rio Conchos and 11.4 river miles (18.3 km) upstream from Alamito Creek.

REMARKS: Reservoirs, diversions, and drainage returns modify the river flow at this station. The transmitter, operated in cooperation with the National Weather Service, relays gage height data upon interrogation by telephone via commercial circuits. Prior to December 1, 1979 the zero of the gage was 2,536.00 feet (772.97 m) above mean sea level, U. S. C. & G. S. datum.

EXTREME FLOWS FROM RECORDS: Momentary: Max. 61,200 second-feet (1,730 m³/sec) on September 30, 1978 with a gage height of 15.41 feet (4.70 m). The greatest recorded flow occurred September 11, 1904, with a peak flow estimated at 162,000 second-feet (4,590 m³/sec) at a station 11.8 miles (19.0 km) upstream. Min. 0.2 second-foot (0.01 m³/sec) several days in July 1955, and on June 30, 1958.

Average Flow in Second-Feet (Cubic Meters per Second)**

Daily:	Max. 53,300 (1,510)	Oct. 1, 1978	Min. 12.9 (0.37)	March 27, 1968
Monthly:	Max. 11,500 (326)	Oct. 1978	Min. 74.5 (2.11)	March 1958
Yearly:	Max. 2,390 (67.7)	1978	Min. 602 (17.0)	1933

Mean Daily Discharge in Second-Feet 1984 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	396	730	495*	215	235*	593*	3,330	1,410*	2,650	1,270	579	732
2	396	569	468	236	274	585	2,950	1,370	2,330	1,380*	606*	713
3	401*	650	459	205*	248	1,430	2,630*	1,250	2,760	1,220	593	689
4	397	671	445	172	202	1,480	2,510	1,150	1,990*	1,850	641	566*
5	389	595	463	190	218	977	2,620	1,090	1,460	1,950	556*	547
6	396	735*	462*	225*	272	571*	2,710	1,000	1,280	2,040	563	645
7	392	730	423	282	327*	478*	2,090	1,280*	1,210	2,030	584	644
8	374	720	391	313	318	371	1,950	1,700	1,130	2,030	746	633
9	431*	692	384	307*	332	342	1,850*	1,330	1,100	2,620*	750	653
10	405	723	366	293	345	320	1,580	2,690	1,070*	2,050	759	663*
11	394	727	372	251	406	292*	1,320	5,430	978	1,930	745	657
12	396	758	423	215	430	646	1,290	5,760	921	2,450	713	672
13	627	756*	399*	185*	468	3,590	1,260	2,300*	920	1,830	871	655
14	721	693	365	174	488	3,470*	1,150	1,720	931	1,780	659*	714
15	756	573	332	227	510*	809	1,090	3,050	890	1,690	619	1,230
16	777	622	330*	351	955	527	1,030	4,550	866	1,600	598	892
17	778	501	330	327*	1,110*	4,900	883	5,780	890	1,460*	604	723
18	750	619	339	342	1,720	12,630*	775	5,480	859*	1,200	599	711
19	745	631	364	316	887	7,720*	708	5,460	841	957	611*	638
20	719	636	335*	334	815	7,210	670	5,830	870	844	615	590
21	709	638*	311	322	788*	1,860	606	5,940	832	312*	615	695
22	738	624	274	308	744	2,580	1,480	6,260*	901	771	614	690
23	736*	611	275	302*	662	3,090	1,280*	7,060	935	790	618	589
24	587	592	351	216	610	3,330	711*	6,240*	949*	737	1,150	701*
25	677	576	366	153	590	3,570	1,240	5,030	1,190	741	1,290	696
26	646	567	413*	131*	549	3,340	882	5,960	8,710*	936	830	691
27	546	553	361	113	554	3,170*	1,180	5,690	2,050	859	774*	694
28	532	519*	298	97.4	597	2,560	1,320	5,270*	1,670	851	758	689
29	643	497	258	194	543*	3,150	1,480	4,930	1,450	801	763	587
30	624	241	400*	655	3,590	1,540	1,540	4,030	1,260	742	743	665
31	553*	222		617		1,480	1,480	3,210		716		571
Sum	18,031	18,908	11,315	7,391.4	17,480	79,351	47,605	120,170	45,953	43,777	21,402	21,925
Current Year 1984										Period 1963-1984		
Month	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet			
	High	Low	Day	High	Day	Low	Acre-Feet	Average	Maximum	Minimum		
Jan.	3.63	2.64	17	812	18	354	582	35,764	37,532	115,947	16,058	
Feb.	3.65	3.07	13	786	28	487	652	37,503	34,327	110,937	4,745	
Mar.	3.12	2.19	1	521	31	208	365	22,443	50,884	223,755	4,583	
Apr.	2.92	1.72	30	458	28	87.0	246	14,661	46,553	95,039	6,497	
May	5.67	2.10	18	3,100	4	182	564	34,671	52,845	124,046	12,147	
June	10.83	2.39	13	21,590	11	259	2,650	157,390	56,431	157,390	5,927	
July	6.51	3.35	6	4,110	21	595	1,540	94,423	65,315	172,324	18,744	
Aug.	3.64	4.91	12	11,590	7	833	3,890	238,354	111,993	270,367	30,365	
Sept.	9.43	3.83	26	14,930	113	841	1,530	91,146	168,762	459,332	22,489	
Oct.	5.19	3.56	3	3,709	31	695	1,410	95,830	129,304	706,691	16,772	
Nov.	5.50	3.16	24	2,360	3	514	713	42,450	43,370	128,549	8,741	
Dec.	5.09	3.33	15	1,930	9	612	707	43,488	32,935	77,105	11,038	
Yearly	10.83	1.72		21,590		87.0	1,240	899,123	835,161	1,732,514	483,092	
Yearly	Meters		Cubic Meters per Second				Thousands of Cubic Meters					
	3.30	0.52		699		2.46	35.1	1,109,050	1,030,154	2,137,056	595,394	

** Period 1963-1984

* Discharge measurement made on this day

! And other days

TERLINGUA CREEK NEAR TERLINGUA, TEXAS

DESCRIPTION: Cableway, gravity well, and water-stage recorder located on the left bank at latitude 29°11'50", longitude 103°36'20", 2.6 creek miles (4.2 km) from the confluence with the Rio Grande, and about 8.5 miles (13.7 km) south of Terlingua, Brewster County, Texas. This creek enters the Rio Grande at river mile 885.2 (1,424.6 km), the lower end of Santa Helena Canyon. The zero of the gage is 2,200.64 feet (670.76 m) above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 28 discharge measurements during the year and a continuous record of gage heights. Computations by shifting control methods. Records available: 1932 through 1984.

REMARKS: Irrigation diversions modify the flow of this spring-fed creek at this station.

EXTREME FLOWS FROM RECORDS: Momentary: Max. 34,900 second-feet (988 m³/sec) on May 24, 1935 with a gage height of 17.59 feet (5.36 m) on a gage 0.3 mile (0.5 km) downstream. Min. 0.1 second-foot (0.003 m³/sec) several days in June and July 1950.

Average Flow in Second-Feet (Cubic Meters per Second)			
Daily:	Max. 17,200 (487)	June 1, 1937	Min. 0.1 (0.003)
Monthly:	Max. 1,150 (32.6)	Sept. 1974	Min. 0.8 (0.02)
Yearly:	Max. 146 (4.13)	1937	Min. 5.5 (0.16)
			Several days in June & July 1950
			October 1934
			1943

Mean Daily Discharge in Second-Feet 1984 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1.6	* 1.9	1.4	1.3	* 1.1	1.7	28.7	1.3	1.7	* 8.3	* 1.9	2.5
2	1.6	1.8	1.4	* 1.3	1.2	48.1	* 20.9	1.3	12.8	3.7	1.9	2.1
3	* 1.6	1.8	1.3	1.3	1.2	71.0	7.9	1.2	3.0	3.2	1.9	* 1.5
4	1.6	1.8	1.3	1.3	1.2	126	* 13.3	1.2	* 11.6	3.0	1.8	1.6
5	1.6	1.7	* 1.2	1.3	1.2	133	46.7	1.2	5.7	2.8	1.8	1.6
6	1.6	1.7	1.2	1.3	1.2	24.1	18.0	* 1.2	3.4	2.8	1.8	1.7
7	1.6	1.6	1.2	1.3	1.2	8.3	2.2	2.0	3.1	2.7	1.8	1.7
8	1.6	1.6	1.2	1.3	1.2	2.8	1.7	468	2.9	2.7	1.8	1.8
9	1.6	1.6	1.3	1.2	1.2	92.3	1.6	453	2.7	2.7	1.8	1.8
10	1.5	1.5	1.3	1.2	1.2	132	4.7	551	2.6	2.6	1.8	1.8
11	1.5	1.5	1.3	1.2	1.2	2.0	6.0	325	2.4	1,350	1.7	1.9
12	1.5	1.4	1.3	1.2	1.2	.8	2.1	23.2	2.2	288	1.7	1.9
13	1.5	* 1.4	1.3	1.2	1.2	202	1.5	4.2	2.1	9.1	* 1.7	2.0
14	1.5	1.4	1.3	1.2	* 1.2	725	1.1	1.7	1.8	3.7	1.7	2.0
15	1.5	1.4	1.3	1.2	1.4	820	1.0	1.5	1.5	* 2.0	1.7	2.1
16	* 1.5	1.4	1.4	* 1.2	60.2	165	* .9	1.4	* 1.3	1.4	1.7	2.1
17	1.5	1.5	1.4	1.2	1.6	773	.8	1.4	1.2	1.4	1.7	2.2
18	1.6	1.5	1.4	1.2	60.6	2,620	.8	1.4	1.2	1.5	1.7	2.2
19	1.6	1.5	* 1.4	1.2	4.2	1,450	3.1	1.4	1.2	1.5	1.7	* 2.2
20	1.6	1.5	1.4	1.2	3.0	424	* 13.2	* 1.4	1.2	1.5	1.7	2.2
21	1.6	1.5	1.4	1.2	1.4	79.6	239	1.4	1.2	1.6	1.7	2.2
22	1.6	1.5	1.4	1.2	1.4	26.9	213	187	1.2	1.6	1.7	2.1
23	1.7	1.5	1.4	1.2	1.3	16.5	186	113	1.3	1.6	1.7	2.1
24	1.7	1.6	1.4	1.1	1.4	23.0	39.3	21.2	1.3	1.7	1,870	2.1
25	1.7	1.6	1.4	1.1	1.4	18.5	177	1.9	216	1.9	358	2.0
26	1.7	1.6	1.4	1.1	548	9.4	183	1.5	4,240	109	* 55.2	2.0
27	1.8	* 1.6	1.3	1.1	86.6	48.1	27.5	1.5	197	22.3	23.1	2.0
28	1.8	1.6	1.3	1.1	66.3	23.4	23.7	1.5	20.6	7.4	13.5	1.9
29	1.8	1.5	1.3	1.1	* 14.0	73.6	8.6	1.5	25.6	3.7	4.0	1.9
30	1.8	1.3	1.1	1.1	5.3	69.8	* 2.1	1.5	20.0	2.4	3.0	2.1
31	1.9	1.3	1.1	1.1	2.6		1.6	1.5		2.1		48.5
Sum	50.3	45.5	41.2	36.1	877.4	8,209.9	1,277.0	2,177.5	4,789.8	1,849.9	2,857.2	107.8

Month	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Period 1932-1984 Acre-Feet				
	High	Low	Day	High	Day	Low			Average	Maximum	Minimum		
	Jan.			31	0	1.9	110	0	1.5	1.6	99.8	192	875
Feb.			1	0	1.9	112	0	1.4	1.6	90.2	226	4,400	73.4
Mar.			1	0	1.4	15	0	1.2	1.3	81.7	251	2,410	72.4
Apr.			1	1	1.3	124	0	1.1	1.2	71.6	1,196	18,640	55.1
May	7.09		26	11	2,200	1	0	1.1	28.3	1,740	3,502	26,000	91.3
June	7.92		18	14	1,100	12	0	.8	274	16,284	6,496	54,800	59.5
July	5.11	1.74	23	3	2,240	19	0	.7	41.2	2,533	8,023	28,700	113
Aug.	5.89	1.73	8	6	2,660	6	0	1.2	70.2	4,319	6,124	33,617	123
Sept.	7.32		26	12	2,000	117	0	1.2	160	9,500	8,763	68,375	123
Oct.	5.57	1.44	11	4	4,840	16	0	1.4	59.7	3,669	3,409	27,900	50.8
Nov.	5.70		24	5	3,390	111	0	1.7	95.6	5,637	494	5,687	64.9
Dec.	2.73		30	136		3	0	1.5	3.5	214	302	3,080	90.0
Yearly	7.92			14,100		0.7	61.2	44,299.3	38,993	105,807	3,958		
Yearly	Meters		Cubic Meters per Second				Thousands of Cubic Meters						
	2.41		399		0.02	1.73	54,630	48,035	130,513	4,892			

* Discharge measurement made on this day 0 Mean daily ! And other days

RIO GRANDE AT JOHNSON RANCH NEAR CASTOLON, TEXAS AND SANTA ELENA, CHIHUAHUA

DESCRIPTION: Cableway, gravity well, and digital water-stage recorder located on the left bank at latitude 29°02'05", longitude 103°23'25", and river mile 362.4 (1,388.0 km); 1.3 river miles (2.2 km) upstream from the old Johnson Ranch headquarters, 6.0 river miles (9.7 km) downstream from Smoky Creek, and 9.2 river miles (14.8 km) upstream from Chizos Crossing and the Chihuahua-Coahuila state line. The zero of the gage is 2,045.30 feet (623.41 m) above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 27 discharge measurements during the year and a continuous record of gage heights. Computations by shifting control methods. Records available: April 1936 through 1984.

REMARKS: Reservoirs, diversions, and drainage returns modify the river flow at this station.

EXTREME FLOWS FROM RECORDS: Momentary: Max. 71,900 second-feet (2,040 m³/sec), on September 30, 1978 with a gage height of 28.40 feet (8.66 m). A flow estimated at 97,000 second-feet (2,750 m³/sec) with a stage of 24.6 feet (7.50 m) occurred at this station site on October 3, 1932. Min. no flow several days in 1953, 1955, 1957, and 1958.

Average Flow in Second-Feet (Cubic Meters per Second)**			
Daily:	Max. 65,300 (1,850)	Oct. 1, 1973	Min. 27.5 (0.78) Sept. 9, 1963
Monthly:	Max. 12,200 (345)	Oct. 1978	Min. 96.9 (2.74) April 1976
Yearly:	Max. 2,490 (70.5)	1978	Min. 559 (15.8) 1983

Mean Daily Discharge in Second-Feet 1984 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	349	621 *	482	231	* 87.6	691	3,080	1,340	3,050	1,200 *	708 *	683
2	356	697	484	211 *	246	709	2,900 *	1,270	2,720	1,190	665	687
3	375 *	661	447	211	175	906	2,780	1,270	2,550	1,310	635	694 *
4	374	643	429	215	170	1,430 *	2,670	1,250	2,920 *	1,560	596	683
5	371	613	430 *	194	162	1,740	3,880	1,120	2,370	1,470	604	674
6	372	635	446	168	134	1,330	3,080	1,090	2,000	1,500	626	639
7	373	685	457	144	122	790	2,730	1,030	1,830	1,510	643	628
8	373	693	445	160	156	650	2,260	2,080	1,730	1,520	661	627
9	359	691	401	209	202	511	2,110	2,380	1,640	1,500	707	618
10	370	652	380	253	203	995	1,970	1,890	1,570	2,030	721	625
11	406	642	367	256	220	337	1,740	3,130	1,460	2,170	724	631
12	378	653	390	237	251	330	1,480	5,200	1,320	2,040	715	632
13	364	674 *	411	210	308	289	1,380	4,990	1,210	2,090	597 *	633
14	420	694	356	184	343 *	3,630	1,340	2,250	1,190	1,580	546	538
15	616	639	369	156	396	2,560	1,190	1,700	1,180	1,520 *	606	836
16	666 *	615	335	140 *	515	1,050	1,100 *	2,810	1,130	1,480	574	1,260
17	697	594	310	169	936	1,190	1,080	3,770	1,050 *	1,430	545	994
18	706	538	309	279	1,100	5,900	950	4,650	1,020	1,390	538	597
19	694	550	301 *	251	1,470	12,400	789	4,440	924	1,220	533	565 *
20	671	554	328	255	348	9,160 *	741	4,530 *	874	982	530	643
21	670	571	330	246	728	5,550	642	4,650	847	844	509	640
22	652	566	316	279	595	2,660	990	4,720	831	803	487	635
23	655	557	292	267	659	3,240	1,920	5,000	812	739	471	632
24	662	543	271	250	593	3,530	1,390	4,850	940	709	1,010	631
25	641	544	269	233	542	3,810	891	4,760	992	727	1,850	641
26	608	520	327	169	514	3,880	1,620	4,790	7,490	778	1,350 *	650
27	589	516	352	133	939	3,570	1,250	4,930	4,270	1,060	827	648
28	577	536	354	116	648	3,590	1,150	4,630	1,480	902	568	658
29	574	509	315	103	605 *	3,560	1,270	4,360	1,050	814	670	667
30	600	263	94.9	561	3,580	1,340 *	4,020	4,020	1,080	775	689	689
31	624	239		595		1,420	3,510			734		742
Sum	16,152	17,606	11,245	6,023.9	15,123.6	83,468	53,133	101,460	53,350	39,488	21,203	21,420

Month	Current Year 1984							Period 1968-1984			
	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet		
	High	Low	Day	High	Day	Low			Average	Maximum	Minimum
Jan.	2.73	1.94	18	712	14	343	521	32,037	38,112	118,276	15,093
Feb.	2.76	2.31	2	719	29	486	607	34,921	34,165	111,859	7,783
Mar.	2.33	1.62	2	495	31	235	363	22,304	48,757	211,675	6,067
Apr.	1.81	1.03	18	299	30	85.1	201	11,948	44,549	101,012	5,765
May	5.30	1.02	27	2,900	1	83.4	488	29,397	54,814	116,301	14,454
June	13.83	1.78	19	14,400	13	273	2,780	165,555	64,305	192,801	5,339
July	8.28	2.58	5	6,500	21	625	1,710	105,388	74,418	194,499	12,450
Aug.	8.05	3.19	12	6,150	7	976	3,270	201,243	119,649	282,539	30,689
Sept.		2.87	26	7,490 #	24	900	1,780	195,819	174,875	472,093	27,759
Oct.	5.37	2.69	11	2,970	24	688	1,270	78,323	143,592	751,755	17,776
Nov.	5.11	2.45	24	2,720	24	466	797	42,956	51,950	147,332	13,257
Dec.	3.94	2.54	15	1,760	9	612	691	42,485	34,932	80,139	12,107
Yearly	13.83	1.02		14,400		83.4	1,200	872,077	894,168	1,801,958	404,716
Yearly	Meters		Cubic Meters per Second				Thousands of Cubic Meters				
	4.22	0.31		408		2.35	34.0	1,075,690	1,090,604	2,222,715	499,291

** Period 1968-1984 # Discharge measurement made on this day @ Mean daily
* Partly estimated

RIO GRANDE AT FOSTER RANCH NEAR LANGTRY, TEXAS AND RANCHO SANTA ROSA, COAHUILA

DESCRIPTION: Cableway, bubbler gage, concrete control weir, and water-stage recorders (graphic and digital) located on the left bank at latitude 29°46'50", longitude 101°45'30", and river mile 657.5 (1,058.2 km); 500 feet (152 m) downstream from the Terrill-Val Verde County Line, 5.4 river miles (8.8 km) downstream from Lozler Canyon, and about 12.3 miles (19.8 km) west of Langtry, Texas. The zero of the gage is 1,157.17 feet (352.71 m) above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 32 discharge measurements during the year, 25 by the United States Section and 7 by the Mexican Section of the Commission, and a continuous record of gage heights. Computations for high flows by shifting control methods. Low and medium flow computations based on a stable control weir rating curve defined by meter measurements. Records available: September 1951 through 1984.

REMARKS: Reservoirs, diversions, and drainage returns modify the river flow at this station. The concrete control weir was placed in operation on February 21, 1957. The transmitter relays gage height data upon interrogation from the Amistad Dam hydrographic office of the United States Section of the Commission. Transmission is via radio.

EXTREME FLOWS FROM RECORDS: Monetary: Max. 148,000 second-feet (4,190 m³/sec) on November 5, 1978 with a gage height of 38.14 feet (11.63 m). Min. 188 second-feet (5.32 m³/sec) on August 19, 1955.

Average Flow in Second-Feet (Cubic Meters per Second)**

Daily: Max. 31,600 (2,310)	Sept. 20, 1974	Min. 217 (6.15)	July 1, 1968
Monthly: Max. 14,700 (416)	Oct. 1978	Min. 322 (9.12)	March 1958
Yearly: Max. 3,030 (85.8)	1978	Min. 845 (23.9)	1983

Mean Daily Discharge in Second-Feet 1984 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	669	886	916	535	363	794	3,280	1,400 *	3,550	1,780 *	1,100	1,080
2	552	874	838	544 *	353	732	3,330 *	1,470	3,140	1,680	1,050	1,070
3	552 *	855	824	493	338	713	2,930	1,480	2,850	1,510 *	1,010	1,040 *
4	562	879	900	468	324	1,550	2,750	1,410	2,530	1,420	986	1,030
5	658	923	773 *	448	318	1,090	2,610	1,350	2,320	1,440	962 *	1,030 *
6	559	870 *	751	437	365	1,170	3,180	1,370 *	2,580	1,650	933	1,020
7	567	864	727	438	391 *	1,630	3,890	1,280	2,130	1,530	922	1,010
8	565	882	729	439	364	1,530	3,030	1,230	1,800	1,620	910	985
9	569	911	732	428	355	1,110	2,620	1,470	1,630	1,650	942	981
10	559	945	740	410	344	855	2,180	2,400	1,520	1,750	955	971
11	550	958	739	337	333	756	2,040	2,520	1,450	10,900	958	971
12	647	1,050	721	336	334	680	1,920	2,410	1,380 *	2,710	933	967
13	534	1,000	599	403	383	654	1,930	3,180	1,340	2,500	1,010	965
14	561	959	676	450	391	571	1,620	5,490	1,290	3,500	1,020	959
15	550	971	680	452	402	1,220	1,490	3,540	1,200	3,240 *	1,010	933
16	635 *	978	593	444 *	433	2,890	1,420 *	2,150	1,150	1,320	1,000	929
17	643	983	698	421	510	2,830	1,360	1,780	1,140 *	1,550	969	943 *
18	818	942	666	414	1,670	3,490 *	1,280 *	2,720	1,140	1,610	942	1,190
19	883	905	530 *	403	1,110	4,920 *	1,230	3,870	1,110	1,560	910 *	1,360
20	887	871	603	336	1,180	8,380	1,190	4,540 *	1,070	1,520	902	1,140
21	926	830 *	587	376	1,420 *	10,400 *	1,110	4,240	1,050	1,480	902	1,020
22	928	829 *	590	454	1,290	9,340	1,020	4,430	1,020	1,340	902	983
23	924	843	595	452	1,000	4,460	1,280	4,530	995	1,230	902	947
24	932	852	601	457	915	2,670	1,250	5,020	1,010	1,150	902	943
25	917	852	590	458	887 *	2,070	1,610	4,920	1,120	1,110	915	914
26	918	843	596	491	862	3,290	1,940	4,850	1,070	1,080	1,050	994
27	912	819	571	456	840	3,670	1,820	4,910	1,380	1,090	2,010	995
28	894	833	543	439	765	4,150	1,820	4,780	6,310	1,110	1,720	908
29	873	817	537	432	857	3,590	1,890	4,730	3,790	1,120	1,150	916
30	848	817	577	395	905	3,450	1,590	4,410	2,170	1,240	1,160	946
31	834	810	610	435	835	1,330	1,330	4,150	1,150	1,150	969	969
Sum		26,005		13,251		83,545		98,000		59,440		30,908
	23,655		20,922		20,939		51,850		56,365		31,582	

Month	Current Year 1984						Period 1958-1984				
	Extreme Gage Feet		Extreme Second-Feet			Average Second-Feet	Total Acre-Feet	Acre-Feet			
	High	Low	High	Day	Low			Average	Maximum	Minimum	
Jan.	2.30	2.04	23	957	111	529	763	46,941	54,628	122,084	31,343
Feb.	2.42	2.17	12	1,130	3	794	897	51,580	48,515	115,301	22,435
Mar.	2.23	1.95	2	352	128	529	675	41,498	64,556	224,767	19,789
Apr.	2.03	1.77	1	516	30	356	442	26,283	53,651	146,598	20,200
May	3.70	1.70	19	4,050	6	297	575	41,532	74,934	129,421	23,616
June	5.35	2.04	21	10,590	16	523	2,780	165,709	86,199	251,940	22,463
July	3.92	2.33	5	4,310	122	933	2,000	122,593	94,302	218,216	23,871
Aug.	4.25	2.45	14	6,120	3	1,180	3,160	194,380	142,439	233,654	45,474
Sept.	5.12	2.32	29	8,130	123	995	1,980	111,300	120,537	520,937	43,619
Oct.	13.55	2.36	11	25,000	125	1,040	1,950	119,831	181,359	921,825	32,134
Nov.	3.02	2.25	27	2,200	7	839	1,050	62,642	80,993	357,373	30,399
Dec.	2.60	2.25	19	1,420	126	930	997	51,302	52,720	35,959	32,025
Yearly	13.55	1.70		25,000		297	1,440	1,045,243	1,134,333	2,136,111	611,656
	Meters		Cubic Meters per Second			Thousands of Cubic Meters					
	4.15	0.52		708		3.41	40.5	1,203,527	1,397,794	2,203,923	754,490

** Period 1958-1984 * Discharge measurement made on this day † And other days

PECOS RIVER NEAR LANGTRY, TEXAS

DESCRIPTION: Cableway, concrete control weir, bubbler gage, and water-stage recorders (graphic and digital), located on the right bank at latitude 29°43'10", longitude 101°25'45", about 7.5 miles (12.1 km) east of Langtry, Texas, 9.5 river miles (15.3 km) upstream from the Pecos High Railroad Bridge, and 15.0 river miles (24.1 km) from the confluence with the Rio Grande. This stream enters the Rio Grande at river mile 616.0 (991.4 km); 23.6 river miles (39.0 km) downstream from Langtry, Texas. The zero of the gage is 1,133.08 feet (345.35 m) above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 29 discharge measurements during the year, 23 by the United States Section and 6 by the Mexican Section of the Commission, and a continuous record of gage heights. Computations for high flows by shifting control methods. Low and medium flow computations based on stable control weir rating curves defined by meter measurements. Records available: July 1957 through 1984. Records are also available for Pecos River near Comstock, 9.5 river miles (15.3 km) downstream, from March 17 through December 3, 1893 and May 1900 through October 7, 1954; for Pecos River near Shumla, 3.5 river miles (5.6 km) upstream, from October 3, 1954 through June 1957; and for Pecos River at Mouth near Comstock, from March 1951 through July 2, 1968.

REMARKS: Reservoirs, diversions, and drainage returns modify the river flow at this station. The transmitter relays gage height data upon interrogation from the Amistad Dam hydrographic office of the United States Section of the Commission. Transmission is via radio.

EXTREME FLOWS FROM RECORDS: Momentary: Max. 577,000 second-feet (16,300 m³/sec) on September 20, 1974 with a gage height of 75.30 feet (22.95 m). The greatest flood of record, which exceeded a gage height of 100 feet (30.5 m) at this station, occurred on June 28, 1954. The peak discharge was 948,000 second-feet (26,802 m³/sec) at the gaging station located near the railroad bridge 9.5 river miles (15.3 km) downstream. Min. 58.3 second-feet (1.65 m³/sec) on July 27, 1974 with a gage height of 1.47 feet (0.45 m).

Average Flow in Second-Feet (Cubic Meters per Second)

Daily: Max. 153,000 (4,330)	Sept. 20, 1974	Min. 59.5 (1.69)	Aug. 20, 21, & 22, 1970
Monthly: Max. 13,500 (382)	Sept. 1974	Min. 58.0 (1.93)	August 1970
Yearly: Max. 1,500 (42.5)	1974	Min. 131 (3.71)	1970

Mean Daily Discharge in Second-Feet 1984 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	175	186	146	137	115	92.7	126	104	90.3	117 *	159	150
2	182	181	150	137 *	120	90.9	142 *	101	80.1	113	154	153
3	203	178	150	138	119	92.2	121	97.5	135	133	151	156 *
4	205	178	149	138	120	* 97.3	105	94.7	140 *	137	151	158
5	197	175	149 *	135	115	106	99.5	91.8	101	132	148 *	163
6	193	173 *	150	137	116	115	97.7	* 88.7	97.6	129	145	163
7	189	171	152 *	144	116 *	101	93.5	95.9	93.8	190	145	162
8	190	170	154	141	108	98.0	93.6	84.6	93.7	313	146	163
9	198	172	151	144	105	98.9	94.3	84.1	98.0	239	148	165
10	195	170	150	142	102	95.7	81.2	83.3	95.2	207	149	166
11	195	169	152	138	102	94.6	79.9	83.5	94.1	313	144	166
12	186	169	157	137	104	93.8	80.7	92.2	89.5	248	144	165
13	195	163	154	137	104	93.5	79.5	80.7	96.9	245	148	169
14	182	163	154	136	102	119	73.8	81.4	84.7	211	150 *	168
15	182	165	155	135	103	113	77.6	79.5	95.2	184 *	153	223
16	182 *	162	156	135 *	105	108	* 79.5	73.7	95.7	174	154	183
17	132	161	156	134	129	104	80.3	80.9 *	98.0	286	154	172 *
18	183	161	159	135	143	103 *	81.4	83.4	80.3	256	156	172
19	179	159	156 *	138	150	98.3	81.9	88.6	89.0	219	151 *	172
20	179	154	156	137	139	* 95.1	79.9	85.7	86.9	193	151	172
21	178	158 *	156	131	123 *	91.9	79.9	82.5	85.9	176	154	172
22	177	160	149	128	122	90.3	79.9 *	80.3	86.9	165	154	172
23	182	159	148	129	115	88.3	83.3	79.9	85.3	163	154	168
24	185	159	147	123	112	83.2	84.1	81.5	84.6	163	157	167
25	182	153	148	125	107	95.9	460	80.7	83.4	161	157	166
26	178	152	143	124	108	85.6	204	77.6 *	82.7	161	157	166
27	179	148	148	120	106	81.7	130	77.6	83.8	174	157	166
28	178	148	139	120	102	81.5	105	77.4	255	165	160	166
29	178	146	136	118	102	107	101	* 74.8	182	163	150	166
30	176	131	114	114	98.0	108	97.5	73.8	128	160	160	235
31	179	134			95.0		101	83.9		159 *		632
Sum	5,725	4,767	4,640	3,994	3,512.0	2,934.4	3,377.0	2,616.3	3,035.6	5,849	4,570	5,733

Month	Current Year 1984							Period July 1967-1984			
	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet		
	High	Low	Day	High	Day	Low			Average	Maximum	Minimum
Jan.	2.82	1.91	! 3	208	30	172	185	11,355	13,069	29,240	7,559
Feb.	1.75	1.89	! 1	198	27	139	164	9,455	11,460	25,414	7,012
Mar.	1.99	1.76	20	156	30	128	150	9,203	11,637	22,124	6,929
Apr.	1.35	1.79	7	157	129	112	133	7,922	15,457	51,960	7,922
May	1.35	1.62	113	154	31	91.8	113	6,956	15,169	46,055	6,966
June	1.33	1.56	28	148	127	77.6	97.9	5,820	13,125	37,856	5,458
July	3.19	1.56	25	1,320	113	77.6	109	6,698	16,495	76,491	4,289
Aug.	1.57	1.54	! 1	104	129	73.2	34.4	5,189	21,365	162,055	4,178
Sept.	2.55	1.56	29	501	! 2	77.6	191	5,021	59,141	804,466	5,118
Oct.	2.48	1.70	11	444	! 1	112	139	11,601	23,653	113,911	7,123
Nov.	1.37	1.81	! 1	159	! 5	142	152	9,064	16,142	59,734	6,589
Dec.	2.93	1.83	31	933	1	143	135	11,331	13,837	37,859	7,662
Yearly	3.19	1.54		1,320		73.2	139	100,675	230,540	1,037,322	94,683
	Meters		Cubic Meters per Second				Thousands of Cubic Meters				
	3.97	3.47		37.4		2.07	3.94	124,181	234,356	1,341,328	115,791

* Discharge measurement made on this day ! And other days

DEAD MANS CANYON NEAR COMSTOCK, TEXAS

In order to determine storm runoff formerly included with measured flows at a gaging station on the Pecos River before its relocation upstream incident to the completion of Amistad Dam, a gaging station was established during 1968 on Dead Mans Canyon.

DESCRIPTION: Cableway, control weir, bubbler gage, and digital recorder located on the left bank of the canyon at latitude 29°47'05", longitude 101°19'25", 2.3 miles (3.7 km) upstream from its confluence with the Pecos River, which is 9.5 miles (15.3 km) upstream from the Pecos River confluence with the Rio Grande. The zero of the gage is 1,178.00 feet (359.05 m) above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on current meter measurements, a continuous record of gage heights, and the weir discharge rating. Records available: March 1968 through 1984.

REMARKS: This stream is normally dry, its flow being confined to periods of storm runoff from its 88 square miles (228 km²) of watershed area. Only the days of flow are shown below.

EXTREME FLOWS FROM RECORDS: Momentary: Max. 37,800 second-feet (1,070 m³/sec) on September 17, 1974 with a gage height of 12.78 feet (3.90 m). Maximum volumes: Monthly, 29,164 acre-feet (35,974,000 m³) in September 1974; yearly 30,527 acre-feet (37,655,000 m³) in 1974.

Average Flow in Second-Foot (Cubic Meters per Second)

Daily:	Max.	5,850	(165)	Sept. 18,	1974	Min.	} see REMARKS
Monthly:	Max.	490	(13.9)	Sept.	1974	Min.	
Yearly:	Max.	42.2	(1.20)		1974	Min.	

Mean Daily Discharge in Second Feet 1984

Month and Day				
July 24	2.5	Oct. 10	15.8	
		11	19.5	

Annual Summary

Month	Maximum Gage and Discharge			Total Acre-Feet
	Day	Feet	Second-Foot	
July	25	1.28	58.6	4.9
Oct.	10	2.01	540	72.0
		2.01	540	76.9
Yearly		Meters	Cubic Meters per Second	Thous. of Cub. Meters
		0.61	15.3	94.9

DEVILS RIVER AT PAFFORD CROSSING NEAR COMSTOCK, TEXAS

DESCRIPTION: Concrete control wall with rectangular notch opening of 900 second-foot (25.5 m³/sec) capacity, sabbeway, bubbler gage, water-stage recorders (graphic & digital), and binary decimal transmitter located on the left bank at latitude 29°40'35", longitude 101°00'00", about 11.5 miles (18.5 km) east of Comstock, Val Verde County, Texas, and 25.5 river miles (41.0 km) from the confluence with the Rio Grande. The confluence is located at river mile 574.6 (924.7 km), 0.7 river mile (1.1 km) upstream from Amistad Dam. The zero of the gage is 1,131.83 feet (345.00 m) above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 19 discharge measurements during the year, 12 by the United States Section and 7 by the Mexican Section of the Commission, a stable rating curve based on meter measurements, and a continuous record of gage heights. Records available: 1960 through 1984. Records are also available from May 1900 through March 1914 for a station 23.8 river miles (38.3 km) downstream; from December 1923 through September 1932 for a station 22.8 river miles (36.7 km) downstream; from September 2, 1932 through August 1957 for a station 21.0 river miles (33.8 km) downstream; from August 7, 1954 through January 1958 for a station 5.4 river miles (8.7 km) upstream; and from August 1954 through May 31, 1968 for a station at the mouth 24.7 river miles (39.8 km) downstream.

REMARKS: At this station the flow of this spring-fed stream is very uniform during periods of dry weather and is not modified by diversions or storage. The transmitter relays gage height data upon interrogation from the Amistad Dam hydrographic office of the United States Section of the Commission. Transmission is via radio.

EXTREME FLOWS FROM RECORDS: Momentary: Max. 250,000 second-feet (7,080 m³/sec) on September 18, 1974 with a gage height of 19.82 feet (6.04 m). Min. 48.6 second-feet (1.38 m³/sec) on August 20, 1969.

Average Flow in Second-Feet (Cubic Meters per Second)

Daily:	Max. 123,000 (3,480)	Sept. 18, 1974	Min. 53.7 (1.52)	August 20, 1969
Monthly:	Max. 8,460 (240)	Sept. 1974	Min. 64.3 (1.82)	August 1964
Yearly:	Max. 977 (27.7)	1974	Min. 99.9 (2.83)	1968

Mean Daily Discharge in Second-Feet 1984 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	208	204	178	166	149	150	134	130	124	189	150	166
2	217	204	180	167	152	148	130	128	124	183	146	163
3	225	199	180	166	152	148	124	124	124	173	146	160
4	224	194	179	166 *	151	150	123	124	123	167	146	153
5	219	192	175	165	151	157	122	124	121	165	146	153
6	213	192	176	162	151	158	127	124	121	162	146	153
7	205	192	177	164	151 *	152	124	124	121	159	146	153
8	216	192	177	167	147	148	124	122	123	155	146	153
9	234	192	175	169	151	145	123	122	121	157	146	153
10	213	192	173	165	154	145	119	124	121	168	146	153
11	210	192	173	160	151	145	119	123	120	357	145	153
12	207	188	175	158	151	145	118	121	119	309	145	153
13	201	183	177	158	151	142	119	125	119	231	146	156
14	200	188	174	158	151	147	119	127	119	214	146	155
15	200	188	173	156	157	148	119	-126 *	119	204 *	146	187
16	200 *	188	177	156 *	156	148	121 *	128	119	190	146	184
17	200	188	177	155	182	145	128	124	119 *	181	148	184 *
18	200	189	173	158	178	145 *	126	123	119	177	167	182
19	200	188	167 *	162	172	141	121	121	119	172	152 *	174 *
20	200	188	169	161	165	140	121	121 *	119	166	160	174 *
21	200	186 *	169	157	161	142	121	123	120	155	166	172
22	200	184	169	158	158	141	121	121	125	163	161	164
23	200	184	159	158	155	141	124	121	123	163	154	163
24	200	184	168	158	155	141	132	121	121	163	167	163
25	200 *	183	166	157	151	141	213	120	121	170	184	156
26	200	185	167	158	151	141	151	119	121	155	182	156
27	200	176	165	152	150	138 *	141	119	121	166 *	177	156
28	200	177	161	151	149	141	138	119	282 *	166	172	156
29	200	177	162	151	150	145	137	119	283	162	170	159
30	190	168	162	149	151	147	133	125	207	155	169	168
31	193		165		150		130	132		153		1,050
Sum	5,376	5,473	5,330	4,789	4,805	4,365	4,002	3,827	4,038	5,670	4,667	5,925
Current Year 1984									Period 1960-1984			
Month	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet			
	High	Low	Day	High	Low	Average			Maximum	Minimum		
Jan.	1.69	1.51	† 8	256	30	180	206	12,647	14,910	28,842	4,647	
Feb.	1.57	1.49	† 1	204	27	173	189	10,856	12,815	25,287	3,999	
Mar.	1.54	1.45	† 6	192	27	158	172	10,572	12,875	26,404	4,186	
Apr.	1.48	1.42	† 1	169	†29	148	160	9,499	13,946	38,777	4,520	
May	1.53	1.41	† 17	138	8	145	155	9,531	15,079	35,344	4,517	
June	1.49	1.39	† 5	173	†19	138	146	8,658	17,996	54,328	4,259	
July	1.39	1.37	† 25	370	†2	116	129	7,938	20,746	186,522	4,034	
Aug.	1.73	1.29	† 30	244	30	93.9	123	7,591	41,843	408,908	3,955	
Sept.	2.90	1.37	† 28	1,260	15	116	135	8,009	47,773	503,506	5,000	
Oct.	2.65	1.47	† 11	850	10	146	183	11,246	26,441	162,407	5,004	
Nov.	1.53	1.46	†24	184	†11	143	156	9,257	16,203	33,013	4,532	
Dec.	4.19	1.49	† 31	6,190	† 3	153	191	11,752	15,508	31,053	4,697	
Yearly	4.19	1.29		6,190		93.9	162	117,556	256,035	707,092	72,494	
	Meters		Cubic Meters per Second				Thousands of Cubic Meters					
	1.23	0.39		175		2.66	4.59	145,003	315,814	872,198	89,421	

* Discharge measurement made on this day

† And other days

BIG SATAN CREEK NEAR COMSTOCK, TEXAS

In order to determine storm runoff formerly included with measured flows at a gaging station on the Devils River before its relocation upstream incident to the completion of Amistad Dam, a gaging station was established during 1958 on Big Satan Creek.

DESCRIPTION: Cableway, control weir, bubbler gage, and digital recorder located on the right bank of the creek at latitude 29°39'50", longitude 100°57'50", 1.1 miles (1.8 km) upstream from its confluence with the Devils River, which is 21.2 miles (34.1 km) upstream from the Devils River confluence with the Rio Grande. The zero of the gage is 1,134.00 feet (345.64 m) above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on current meter measurements, a continuous record of gage heights, and the weir discharge rating. Records available: May 1968 through 1984.

REMARKS: This creek is normally dry, its flow being confined to periods of storm runoff from its 42 square miles (109 km²) of watershed area. Only the days of flow are shown below.

EXTREME FLOWS FROM RECORDS: Momentary: Max. 56,100 second-feet (1,590 m³/sec) on August 15, 1971 with a gage height of 12.31 feet (3.75 m). Maximum volumes: Monthly, 12,204 acre-feet (15,054,000 m³) in August 1971; yearly, 12,525 acre-feet (15,450,000 m³) in 1971.

Average Flow in Second-Feet (Cubic Meters per Second)

Daily:	Max.	4,480	(127)	Aug. 15, 1971	Min.	} see REMARKS
Monthly:	Max.	198	(5.61)	Aug. 1971	Min.	
Yearly:	Max.	17.3	(0.49)	1971	Min.	

Mean Daily Discharge in Second-Feet 1984

Annual Summary

Month and Day				Maximum Gage and Discharge			Total Acre-Feet
				Month	Day	Feet	
No flow during 1984							
				Yearly			
					Meters	Cubic Meters per Second	Thous. of Cub. Meters

ROUGH CANYON NEAR DEL RIO, TEXAS

In order to determine storm runoff formerly included with measured flows at a gaging station on the Devils River before its relocation upstream incident to the completion of Amistad Dam, a gaging station was established during 1963 on Rough Canyon.

DESCRIPTION: Cableway, control weir, bubbler gage, and digital recorder located on the right bank at latitude 29°34'40", longitude 100°56'00", 3.9 miles (6.3 km) upstream from its confluence with the Devils River, which is 11.1 miles (17.9 km) upstream from the Devils River confluence with the Rio Grande. The zero of the gage is 1,127.00 feet (344.12 m) above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on current meter measurements, a continuous record of gage heights, and the weir discharge rating. Records available: January 1968 through 1984.

REMARKS: This stream is normally dry, its flow being confined to periods of storm runoff from its 24 square miles (62.2 km²) of watershed area. Only the days of flow are shown below.

EXTREME FLOWS FROM RECORDS: Momentary: Max. 7,040 second-feet (199 m³/sec) on August 12, 1972 with a gage height of 5.80 feet (2.07 m). Maximum volumes: Monthly, 3,230 acre-feet (10,152,000 m³) in August 1971; yearly, 3,232.2 acre-feet (10,154,000 m³) in 1971.

Average Flow in Second-Feet (Cubic Meters per Second)

Daily:	Max.	2,140	(60.6)	Aug. 16, 1971	Min.	} see REMARKS
Monthly:	Max.	134	(3.79)	Aug. 1971	Min.	
Yearly:	Max.	11.4	(0.32)	1971	Min.	

Mean Daily Discharge in Second Feet 1984

Annual Summary

Month and Day						Maximum Gage and Discharge			Total Acre-Feet
						Month	Day	Feet	
June 6	3.3	Oct. 9	4.1	Dec. 31	42.4				
		10	41.1						
		11	156						
		12	.8						
						Yearly			
							Meters	Cubic Meters per Second	Thous. of Cub. Meters
							2.54	914	491.6
							0.77	25.9	506

NORTH FORK SAN PEDRO CREEK NEAR DEL RIO, TEXAS

In order to determine storm runoff formerly included with measured flows at a gaging station on the Devils River before its relocation upstream incident to the completion of Amistad Dam, a gaging station was established during 1968 on the north fork of San Pedro Creek.

DESCRIPTION: Cableway, control weir, bubbler gage, and digital recorder located on the right bank of the creek at latitude 29°31'20", longitude 100°53'00", 3 miles (4.8 km) upstream from its confluence with the Middle Fork Branch, which is 6.3 miles (10.1 km) upstream from its confluence with Devils River, which itself is 4.5 river miles (7.2 km) above the Devils River confluence with the Rio Grande. The zero of the gage is 1,126.92 feet (343.49 m) above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on current meter measurements, a continuous record of gage heights, and the weir discharge rating. Records available: January 1968 through 1984.

REMARKS: This creek is normally dry, its flow being confined to periods of storm runoff from its 17 square miles (44 km²) of watershed area. Only the days of flow are shown below.

EXTREME FLOWS FROM RECORDS: Momentary: Max. 5,070 second-feet (144 m³/sec) on August 12, 1972 with a gage height of 8.44 feet (2.57 m). Maximum volumes: Monthly, 3,403 acre-feet (4,198,000 m³) in October 1969; yearly, 4,061.7 acre-feet (5,010,000 m³) in 1969.

Average Flow in Second-Foot (Cubic Meters per Second)

Daily:	Max.	1,240 (35.1)	Oct. 4, 1969	Min.	}	see REMARKS
Monthly:	Max.	55.3 (1.57)	Oct. 1969	Min.		
Yearly:	Max.	5.5 (0.16)	1969	Min.		

Mean Daily Discharge in Second-Foot 1984

Month and Day			
Oct. 10	4.4		
11	38.1		

Annual Summary

Month	Maximum Gage and Discharge			Total Acre-Feet
	Day	Feet	Second-Foot	
Oct.	11	1.63	148	84.3
		1.63	148	34.3
Yearly		Meters	Cubic Meters per Second	Thous. of Cub. Meters
		0.50	4.19	104

MIDDLE FORK SAN PEDRO CREEK NEAR DEL RIO, TEXAS

In order to determine storm runoff formerly included with measured flows at a gaging station on the Devils River before its relocation upstream incident to the completion of Amistad Dam, a gaging station was established during 1968 on the middle fork of San Pedro Creek.

DESCRIPTION: Cableway, control weir, bubbler gage, and digital recorder located on the right bank of the creek at latitude 29°29'30", longitude 100°52'50", 3.2 miles (5.1 km) upstream from its confluence with the North Fork Branch, which is 6.3 miles (10.1 km) above the confluence with Devils River, which itself is 4.5 river miles (7.2 km) above the Devils River confluence with the Rio Grande. The zero of the gage is 1,137.02 feet (346.56 m) above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on current meter measurements, a continuous record of gage heights, and the weir discharge rating. Records available: December 1967 through 1984.

REMARKS: This creek is normally dry, its flow being confined to periods of storm runoff from its 12 square miles (31 km²) of watershed area. Only the days of flow are shown below.

EXTREME FLOWS FROM RECORDS: Momentary: Max. 10,200 second-feet (289 m³/sec) on July 17, 1975 with a gage height of 5.84 feet (1.78 m). Maximum volumes: Monthly, 3,725 acre-feet (4,596,000 m³) in July 1975; yearly 3,726 acre-feet (4,596,000 m³) in 1975.

Average Flow in Second-Foot (Cubic Meters per Second)

Daily:	Max.	1,390 (39.4)	July 17, 1975	Min.	}	see REMARKS
Monthly:	Max.	50.6 (1.72)	July 1975	Min.		
Yearly:	Max.	5.1 (0.14)	1975	Min.		

Mean Daily Discharge in Second Feet 1984

Month and Day			
Oct. 10	14.8		
11	104		
12	1.1		

Annual Summary

Month	Maximum Gage and Discharge			Total Acre-Feet
	Day	Feet	Second-Foot	
Oct.	11	2.16	615	238
		2.16	615	238
Yearly		Meters	Cubic Meters per Second	Thous. of Cub. Meters
		0.66	17.4	294

EVANS CREEK NEAR COMSTOCK, TEXAS

In order to determine storm runoff formerly included with measured flows at a gaging station on the Devils River before its relocation upstream incident to the completion of Amistad Dam, a gaging station was established during 1968 on Evans Creek.

DESCRIPTION: Cableway, control weir, bubbler gage, and digital recorder located on the left bank of the creek at latitude 29°32'15", longitude 101°06'10", 11.0 miles (17.7 km) upstream from its confluence with Devils River, which is 3.2 miles (5.1 km) upstream from the Devils River confluence with the Rio Grande. The zero of the gage is 1,162.54 feet (354.34 m) above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on current meter measurements, a continuous record of gage heights, and the weir discharge rating. Records available: December 1967 through 1984.

REMARKS: This creek is normally dry, its flow being confined to periods of storm runoff from its 74 square miles (192 km²) of watershed area. Only the days of flow are shown below.

EXTREME FLOWS FROM RECORDS: Momentary: Max. 17,400 second-feet (493 m³/sec) on June 2, 1971 with a gage height of 5.99 feet (1.83 m). Maximum volumes: Monthly, 9,281 acre-feet (11,448,000 m³) in August 1971; yearly, 14,404 acre-feet (17,767,000 m³) in 1971.

Average Flow in Second-Feet (Cubic Meters per Second)

Daily:	Max. 3,940 (112)	Aug. 15, 1971	Min.	} see REMARKS
Monthly:	Max. 151 (4.28)	Aug. 1971	Min.	
Yearly:	Max. 19.9 (0.56)	1971	Min.	

Mean Daily Discharge in Second-Feet 1984

Annual Summary

Month and Day					Maximum Gage and Discharge			
					Month	Day	Feet	Second-Feet
Oct.	11	17.5			11	1.43	227	34.7
						1.43	227	34.7
				Yearly		Meters	Cubic Meters per Second	Thous. of Cub. Meters
						0.44	6.43	42.8

CARMINA SPRINGS NEAR CD. ACUNA, COAHUILA

DESCRIPTION: Cipolletti weir of 70.6 second-foot (2.0 m³/sec) capacity and staff gage located on a creek that runs almost parallel to Amistad Dam, about 130 feet (40 m) from the confluence with the Rio Grande, at latitude 29°26'50", longitude 101°03'35", and about 11.0 miles (17.7 km) northwest of Cd. Acuna, Coahuila. This creek enters the Rio Grande from the Mexican side at river mile 573.7 (923.2 km), 0.2 river mile (400 m) downstream from Amistad Dam and 12.6 river miles (20.3 km) upstream from the international highway bridge between Del Rio, Texas and Cd. Acuna, Coahuila. The elevation of the zero of the gage has not been determined.

RECORDS: Based on periodic staff gage readings and the weir discharge table. Mean daily discharges determined by prorating between readings. Records available: 1959 through 1994.

REMARKS: At least six separate springs have emerged on the watershed of this small creek since operation of Amistad Dam began in May 1953. Prior to this time, flow in this creek was exclusively from storm runoff. All storm water from surface runoff passing this station is deducted and is not included in the tabulation below. On September 24, 1971, a flood destroyed part of the weir.

Mean Daily Discharge in Second-Feet 1984 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	41.7	41.7	41.0	40.6	39.2	37.4	37.8	40.3	43.4	41.0	44.5	39.6
2	41.7	41.7	41.0	40.5	38.3	37.4	37.8	40.3	43.4	41.0	43.1	39.5
3	41.7	41.7	41.0	40.6	38.8	37.4	37.8	40.3	43.4	41.0	42.0	39.5
4	41.7	41.7	41.0	40.6	38.3	37.4	37.4	40.3	43.4	41.0	40.6	39.5
5	41.7	41.7	41.0	40.6	38.8	37.4	37.4	40.3	43.4	41.0	39.6	39.2
6	41.7	41.7	41.7	40.5	38.9	38.5	37.1	40.3	43.4	41.0	38.1	39.2
7	41.7	41.7	41.7	40.6	38.9	38.5	36.7	40.3	43.4	41.0	38.1	38.8
8	41.7	41.7	41.7	40.6	38.5	38.5	36.7	40.6	43.4	41.0	38.1	38.9
9	41.7	41.7	41.7	40.5	38.1	38.5	36.4	40.6	43.4	41.0	37.4	38.3
10	41.7	41.7	41.7	39.9	38.1	37.8	36.0	40.6	43.4	41.0	37.4	38.5
11	41.7	41.7	41.7	39.2	38.1	37.1	36.0	40.6	43.4	41.0	37.4	38.5
12	41.7	41.7	41.7	39.2	38.1	36.7	36.0	40.6	43.4	41.0	37.4	38.9
13	41.7	41.7	41.7	39.2	38.1	36.0	36.0	40.6	43.4	41.0	38.1	38.3
14	41.7	41.0	41.0	39.2	38.1	35.0	36.0	41.0	43.4	41.0	38.5	39.2
15	41.7	41.0	41.0	39.2	38.1	36.0	36.0	41.3	43.4	41.0	38.5	39.6
16	41.7	41.0	41.0	39.2	37.4	36.0	35.0	41.3	43.4	40.6	38.5	39.6
17	41.7	41.0	41.0	39.2	37.4	36.0	35.0	41.7	42.4	40.3	38.5	40.3
18	41.7	41.0	41.0	39.2	37.4	36.0	35.0	41.7	41.7	39.9	38.5	40.3
19	41.7	41.0	41.0	39.2	37.4	36.0	36.0	41.7	42.4	39.2	38.5	40.3
20	41.7	41.0	40.5	39.2	37.4	36.4	36.0	41.7	42.4	38.9	38.6	40.3
21	41.7	40.6	40.6	39.2	37.4	36.4	36.0	41.7	42.4	38.5	38.5	40.3
22	41.7	40.6	40.6	39.2	37.4	36.4	35.0	42.4	41.7	37.9	38.5	40.3
23	41.7	40.6	40.6	39.2	37.4	36.4	36.0	42.4	41.0	37.4	38.5	40.3
24	41.7	40.6	40.5	39.2	37.4	35.4	37.8	42.4	40.3	37.4	38.5	40.3
25	41.7	40.5	40.6	39.2	37.4	36.4	40.3	42.4	40.3	43.4	38.5	40.3
26	41.7	40.5	40.6	39.2	37.4	35.0	41.0	42.4	40.3	43.4	38.5	40.3
27	41.7	40.6	40.5	39.2	37.4	37.4	40.3	42.4	40.3	43.4	38.5	40.3
28	41.7	40.6	40.5	39.2	37.4	37.4	40.3	42.4	41.0	43.4	38.5	39.6
29	41.7	40.6	40.5	39.2	37.4	37.4	40.3	43.4	41.0	43.4	38.5	39.6
30	41.7	40.6	40.5	39.2	37.4	37.4	40.3	43.4	41.0	43.4	38.5	39.2
31	41.7	40.6	40.6	39.2	37.4	37.4	40.3	43.4	43.4	43.4	38.5	38.9
Sum	1,292.7	1,194.5	1,271.9	1,189.3	1,175.6	1,108.6	1,159.7	1,284.8	1,272.6	1,251.7	1,159.5	1,227.0
Current Year 1984								Period 1959-1994				
Month	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet			
	High	Low	Day	High	Low	Average			Maximum	Minimum		
Jan.			1	41.7	1	41.7	41.7	2,563	2,730	4,041	354	
Feb.			1	41.7	121	40.6	41.3	2,353	2,465	2,495	374	
Mar.			6	41.7	120	40.6	41.0	2,521	2,650	2,621	525	
Apr.			1	40.5	111	39.2	39.5	2,559	2,523	2,514	623	
May			1	39.2	116	37.4	37.3	2,334	2,571	2,591	709	
June			6	33.5	113	36.0	37.1	2,199	2,544	2,572	593	
July			26	41.0	110	35.0	37.4	2,300	2,602	2,591	511	
Aug.			123	43.4	1	40.3	41.3	2,547	2,675	2,616	540	
Sept.			1	43.4	124	40.3	42.4	2,525	2,628	2,416	593	
Oct.			125	43.4	123	37.4	41.0	2,516	2,400	1,817	810	
Nov.			1	44.5	1	37.4	38.3	2,320	2,733	2,535	954	
Dec.			117	40.3	11	38.5	39.5	2,477	2,353	2,205	1,077	
Yearly	Meters		Cubic Meters per Second				Thousands of Cubic Meters					
				1.25	1.02	1.13	35.750	49,244	59,311	11,201		

Ø Mean daily

1 And other days

* Discharge measurement made on this day

LOURDES AND HILDA SPRINGS NEAR CD. ACUNA, COAHUILA

LOURDES SPRING

DESCRIPTION: Rectangular sharp-crested weir of 28.8 second-foot (815 l/sec) capacity and staff gage located at latitude 29°26'35", longitude 101°03'30", at the base of the high bank of the Rio Grande, and about 11.1 miles (17.9 km) northwest of Cd. Acuna, Coahuila. This creek enters the Rio Grande from the Mexican side at river mile 573.2 (922.5 km), 12.2 river miles (19.6 km) upstream from the international highway bridge between Del Rio, Texas and Cd. Acuna, Coahuila. The zero of the gage is 926.28 feet (282.33 m) above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on periodic staff gage readings and the weir discharge table. Mean daily discharges determined by prorating between readings. Records available: 1969 through 1984.

REMARKS: This spring emerged since operation of Amistad Dam began in May 1968. All storm water from surface runoff passing this station is deducted. The daily flow throughout the year ranged from 2.1 (0.06) to 2.5 second-feet (0.07 m³/sec) and averaged 2.2 second-feet (0.06 m³/sec). The volume for the year amounted to 1,582 acre-feet (1,951,000 m³).

HILDA SPRING

DESCRIPTION: Rectangular sharp-crested weir of 53.0 second-foot (1,50 m³/sec) capacity and staff gage located at latitude 29°26'20", longitude 101°03'35", about 328 feet (100 m) from the confluence with the Rio Grande and about 11.0 miles (17.7 km) northwest of Cd. Acuna, Coahuila. This creek enters the Rio Grande from the Mexican side at river mile 572.8 (921.8 km), 11.8 river miles (19.0 km) upstream from the international highway bridge between Del Rio, Texas and Cd. Acuna, Coahuila. The zero of the gage is 908.14 feet (276.80 m) above mean sea level U. S. C. & G. S. datum.

RECORDS: Based on periodic staff gage readings and the weir discharge table. Mean daily discharges determined by prorating between readings. Records available: 1969 through 1984.

REMARKS: This spring emerged since operation of Amistad Dam began in May 1968. All storm water from surface runoff passing this station is deducted. The daily flow throughout the year ranged from 1.9 (0.05) to 2.5 second-feet (0.07 m³/sec) and averaged 2.2 second-feet (0.06 m³/sec). The volume for the year amounted to 1,583 acre-feet (1,953,000 m³).

In order to determine what effect storage in Amistad Reservoir has on the flow of various Mexican springs in the vicinity of Amistad Dam, gaging stations were established in November 1961 at Ernestina and Rosita Springs. The station at Rosita Spring was discontinued in June 1976. The station at Ernestina was discontinued in March 1981.

RIO GRANDE BELOW AMISTAD DAM NEAR CD. ACUNA, COAHUILA AND DEL RIO, TEXAS

DESCRIPTION: Cableway, gravity well, concrete control weir, and water-stage recorders (graphic and digital), and binary decimal transmitter located on the left bank at latitude 29°25'30", longitude 101°02'25", and river mile 571.8 (920.3 km), 2.2 river miles (3.4 km) downstream from Amistad Dam and 10.8 river miles (17.4 km) upstream from the international highway bridge between Del Rio, Texas and Cd. Acuna, Coahuila. The zero of the gage is 898.94 feet (274.00 m) above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 53 discharge measurements during the year, 41 by the Mexican Section and 12 by the United States Section of the Commission, and a continuous record of gage heights. Computations for high flows by shifting control methods. Low and medium flow computations based on a stable control weir rating curve defined by meter measurements. Records available: September 1954 through 1984. Records are also available from May 1900 through April 1915 for a station 1.9 miles (3 km) upstream; from December 1919 through March 1920 for a station 1.7 miles (3 km) downstream near McKee's Switch; from July 2, 1941 through August 1954 and October 1960 through 1967 for a station at the international highway bridge; and from December 1923 through July 2, 1941, and 1968 through 1984 for a station approximately 10.6 miles (17.0 km) downstream.

REMARKS: Reservoirs, diversions, and drainage returns modify the river flow at this station. On May 31, 1968 Amistad Dam started impounding water. After this day, flow at this station is controlled largely by releases from Amistad Reservoir, 2.1 river miles (3.3 km) upstream. The transmitter relays gage height data upon interrogation by telephone via private line to the Amistad office.

EXTREME FLOWS FROM RECORDS: Momentary: Max. 1,158,000 second-feet (32,800 m³/sec) on June 28, 1954, determined by slope-area computation, with a gage height of 55.72 feet (16.98 m) at the old station site 500 feet (152 m) downstream. This is the greatest rate of discharge recorded at any point on the Rio Grande. Max. since Amistad Dam, 62,200 second-feet (1,760 m³/sec) on Sept. 21, 1974. Min. 22.2 second-feet (0.63 m³/sec) on February 14, 1969 with a gage height of 1.08 feet (0.33 m).

		Average Flow in Second-Feet (Cubic Meters per Second)		
Daily:	Max. 61,100 (1,730)	Sept. 22, 1974	Min. 46.6 (1.32)	April 13, 1971
Monthly:	Max. 21,500 (609)	Sept. 1974	Min. 60.7 (1.72)	October 1971
Yearly:	Max. 4,910 (139)	1974	Min. 575 (16.3)	1972

Mean Daily Discharge in Second-Feet 1984 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1,560	1,820	1,810	4,060 *	1,020	533	2,300	3,670	3,430	1,260	558	558
2	1,600	1,820	1,820 *	4,450	3,060	547	2,840	3,670	3,260	1,230	558	558
3	1,620 *	1,820 *	1,830	5,230 *	11,200	554	3,110	3,670	3,330	1,290	562	562
4	1,560	1,820	1,830	5,120	12,600	1,200	3,670	3,670	3,330	1,180	562	576
5	1,560	1,820	1,830	6,140	12,500	1,820 *	3,640	3,670	3,420	1,160	558	1,290
6	1,590 *	1,850	1,830	8,190 *	12,400	1,830	3,640	3,670	3,390	975	530	1,420
7	1,550	1,820 *	1,830	8,120	10,100 *	1,820	3,640	3,670 *	3,390	904	537	1,450
8	1,570	1,830	1,830	8,120	7,560	1,830	3,530	3,670	2,920	897	544	1,240
9	1,010	1,830	1,830 *	8,690	7,490	1,830	3,670	3,670	2,930	890	544	1,240
10	554	1,840 *	1,830	9,750 *	8,370	1,810	3,670	3,670	2,930	897 *	551	1,230
11	554	1,840	1,830	9,710	9,110	1,810	3,670	3,670	2,960 *	876	558	1,240 *
12	540	1,840	1,830	8,620	8,970	1,820	3,670	3,670	2,920	819	558	1,240
13	547 *	1,610	1,830	4,410	8,900	1,830 *	3,670	3,160	2,900	869	551 *	1,220
14	512	565	1,970	1,660	8,830	1,830	3,670	2,750 *	2,930	883	547	1,200
15	526	558	2,290	1,660	8,860	1,840	3,670	2,740	2,330	890	547	1,550
16	512	526 *	2,450 *	1,030	8,160 *	1,840	3,670	2,790 *	2,330	890	558	1,570
17	477	512 *	2,500	961	6,750	1,850	3,670 *	2,900 *	2,280	879	562	1,580
18	466	569	2,500	795	6,250 *	1,730	3,670	2,950	1,500 *	876 *	562	1,580
19	470 *	590	2,510	593 *	6,220	1,860 *	3,670 *	2,270	1,390	953	558	1,570
20	491	604	2,500 *	611	6,250	1,850	3,670	2,970	1,370 *	883	565	1,560 *
21	466	558	2,390	519	5,370	1,860	3,670	2,970 *	1,370 *	840	547 *	1,560
22	466	1,720	2,550	491	2,120	1,860 *	3,670	3,380	1,370	862	558	1,560
23	466	1,830	2,760	498	742	1,840	3,670	4,130	1,370	862	562	1,570
24	452 *	1,830 *	2,650	516 *	780	1,850	3,670 *	4,170	1,390	862	569	1,590
25	463	1,830	2,670	562	770	1,860	3,710	4,170	1,380 *	855	562	1,590
26	452	1,810	2,680	625	604	2,080 *	3,640	4,170	1,360	865	562	1,590
27	452	1,800	2,650 *	855	597	2,320	3,670	4,100	1,360	512	558 *	1,570
28	438	1,800	2,690	1,010	607	2,320	3,670	4,100 *	1,370	512	558	1,530
29	434	1,820	3,280	1,010	579	2,310	3,670	4,100	1,300	533	558	1,580
30	1,530		4,240	1,010	537	2,310	3,670	4,130	1,280	558 *	558	1,570
31	1,800		4,060		533		3,670	3,710				1,600
Sum	26,688	42,482	73,100	105,016	177,839	52,644	110,790	109,700	68,790	27,320	16,662	41,726
Current Year 1984										Period 1968-1984		
Month	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet			
	High	Low	Day	High	Day	Low			Average	Maximum	Minimum	
Jan.	1.61	0.66	6	1,970	12	357	862	52,933	82,968	209,814	5,318	
Feb.	1.97	.62	6	1,970	17	346	1,470	84,278	114,878	467,202	12,467	
Mar.	2.53	1.51	29	4,940	1	1,800	2,360	145,064	130,170	395,457	7,271	
Apr.	3.64	.46	9	9,960	20	170	3,500	208,301	109,278	342,129	27,570	
May	4.27	.72	3	12,700	23	452	5,760	352,965	198,177	506,848	24,137	
June	1.74	.79	26	2,380	1	526	1,760	104,416	159,519	327,602	16,418	
July	2.40	1.74	2	4,410	1	2,300	3,570	219,852	136,839	366,470	23,182	
Aug.	2.59	.33	26	5,190	19	69.2	3,530	217,603	161,150	662,215	15,589	
Sept.	2.56	1.25	5	5,050	30	1,270	2,290	136,455	209,373	1,280,079	17,606	
Oct.	1.57	.69	13	1,940	23	381	883	54,194	157,934	812,596	3,734	
Nov.	.89	.79	20	699	6	526	554	33,040	92,594	502,295	4,539	
Dec.	1.48	.79	31	1,700	3	526	1,350	82,780	73,175	216,286	4,859	
	4.27	0.33		12,700		69.2	2,330	1,691,881	1,626,055	3,566,066	416,788	
Yearly	Meters		Cubic Meters per Second				Thousands of Cubic Meters					
	1.30	0.10	361	1.96	66.0	2,086,913	2,005,717	4,398,694	514,104			

* Discharge measurement made on this day

SPRING M-15 AND SPRING M-5 NEAR CD. ACUNA, COAHUILA

SPRING M-15

DESCRIPTION: Rectangular sharp-crested weir of 8.1 second-foot (230 l/sec) capacity and staff gage located at latitude 29°25'20", longitude 101°02'40", about 1,300 feet (400 m) from the confluence with the Rio Grande and about 9.4 miles (15.1 km) northwest of Cd. Acuna, Coahuila. This creek enters the Rio Grande from the Mexican side at river mile 571.3 (919.4 km), 10.3 river miles (16.6 km) upstream from the international highway bridge between Del Rio, Texas and Cd. Acuna, Coahuila. The zero of the gage is 925.13 feet (281.98 m) above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on periodic staff gage readings and the weir discharge table. Mean daily discharges determined by prorating between readings. Records available: 1969 through 1984.

REMARKS: This spring emerged since operation of Amistad Dam began in May 1958. All storm water from surface runoff passing this station is deducted and is not included in the tabulation below.

Month	Extreme Gage Feet		Current Year 1984				Average Second-Foot	Total Acre-Feet	Period 1969-1984		
			Extreme Second-Foot						Acre-Feet		
	High	Low	Day	High	Day	Low	Average	Maximum	Minimum		
Jan.			! 1	2.1	31	1.5	1.8	113	79.9	131	21.1
Feb.			! 1	1.5	! 5	1.4	1.4	81.3	70.4	123	19.5
Mar.			! 1	1.4	! 28	.8	1.1	67.2	71.2	122	21.9
Apr.			! 1	.7	! 1	.7	.7	41.7	67.5	105	21.1
May			! 1	.7	! 1	.7	.7	43.0	71.5	109	21.9
June			! 1	.7	30	.4	.6	35.1	63.6	121	21.1
July			! 30	1.5	! 1	.4	.9	56.7	66.5	106	21.1
Aug.			! 6	1.8	! 29	.9	1.4	83.9	65.5	122	0
Sept.			! 1	.8	! 3	.7	.7	42.0	63.5	105	0
Oct.			! 1	.7	! 1	.7	.7	43.0	67.6	117	0
Nov.			! 1	.7	! 1	.7	.7	41.7	69.7	124	21.1
Dec.			31	1.4	! 1	.7	1.0	61.1	77.9	131	21.9
Yearly				2.1		0.4	1.0	709.7	834.8	1,362.2	257.2
	Meters		Cubic Meters per Second				Thousands of Cubic Meters				
				0.06		0.01	0.03	875	1,030	1,679	317

SPRING M-5

DESCRIPTION: Rectangular sharp-crested weir of 17.7 second-foot (500 l/sec) capacity and staff gage located at latitude 29°25'20", longitude 101°02'35", at the base of the high bank of the Rio Grande, and about 9.2 miles (14.8 km) northwest of Cd. Acuna, Coahuila. This creek enters the Rio Grande from the Mexican side at river mile 571.1 (919.1 km), 10.1 river miles (16.3 km) upstream from the international highway bridge between Del Rio, Texas and Cd. Acuna, Coahuila. The zero of the gage is 932.38 feet (284.19 m) above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on periodic staff gage readings and the weir discharge table. Mean daily discharges determined by prorating between readings. Records available: 1959 through 1984.

REMARKS: This spring emerged since operation of Amistad Dam began in May 1958. All storm water from surface runoff passing this station is deducted and is not included in the tabulation below.

Month	Extreme Gage Feet		Current Year 1984				Average Second-Foot	Total Acre-Feet	Period 1969-1984		
			Extreme Second-Foot						Acre-Feet		
	High	Low	Day	High	Day	Low	Average	Maximum	Minimum		
Jan.			! 1	2.5	! 1	2.5	2.5	154	158	195	86.7
Feb.			! 1	2.5	! 1	2.5	2.5	144	143	173	78.6
Mar.			! 30	2.8	! 1	2.5	2.6	161	154	184	64.9
Apr.			! 1	2.8	! 28	2.5	2.7	159	149	178	63.2
May			! 1	2.5	! 1	2.5	2.5	154	155	186	64.9
June			! 29	2.8	! 1	2.5	2.6	156	148	181	63.2
July			! 1	2.8	! 21	2.6	2.7	165	148	173	43.8
Aug.			! 1	2.6	! 2	2.5	2.5	154	153	193	43.8
Sept.			! 27	2.8	! 1	2.5	2.6	156	151	189	42.2
Oct.			! 1	2.8	! 1	2.8	2.8	172	157	195	43.8
Nov.			! 1	2.8	! 1	2.8	2.8	167	152	189	63.2
Dec.			! 1	2.8	! 1	2.8	2.8	172	156	195	64.9
Yearly				2.8		2.5	2.6	1,914	1,825	2,148	723.2
	Meters		Cubic Meters per Second				Thousands of Cubic Meters				
				0.03		0.07	0.07	2,361	2,251	2,653	892

! Mean daily

! And other days

ARROYO DE LOS JABONCILLOS NEAR CD. ACUNA, COAHUILA

DESCRIPTION: Cipolletti weir of 70.6 second-foot (2 m³/sec) capacity and staff gage located at latitude 29° 24' 25", longitude 101° 02' 20", about 660 feet (200 m) from the confluence with the Rio Grande, and about 8.6 miles (13.8 km) northwest of Cd. Acuna, Coahuila. This creek enters the Rio Grande from the Mexican side at river mile 570.5 (918.2 km), 9.5 river miles (15.3 km) upstream from the international highway bridge between Del Rio, Texas and Cd. Acuna, Coahuila. The elevation of the zero of the gage has not been determined.

RECORDS: Based on periodic staff gage readings and the weir discharge table. Mean daily discharges determined by prorating between readings. Records available: 1969 through 1984.

REMARKS: At least 9 separate springs have emerged along this creek since operation of Amistad Dam began in May 1968. Prior to this time, flow in this creek was exclusively from storm runoff. All storm water from surface runoff passing this station is deducted and is not included in the tabulation below.

Mean Daily Discharge in Second-Feet 1984 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	50.9	51.9	51.2	47.7	43.8	40.3	39.2	39.9	36.0	40.3	43.8	45.2
2	53.0	51.9	51.2	47.0	43.8	39.9	38.8	39.2	35.7	41.0	43.8	45.2
3	54.7	51.9	50.5	47.3	43.8	39.9	38.5	38.8	35.3	40.3	43.8	45.2
4	53.0	51.9	50.5	47.7	43.8	39.9	38.8	38.8	36.0	40.3	43.8	45.2
5	52.3	51.9	50.5	47.7	43.8	41.7	38.8	38.5	36.0	40.3	43.8	45.2
6	51.6	51.9	50.5	46.3	43.8	41.7	38.8	37.8	36.0	40.3	43.8	45.2
7	51.2	51.2	50.5	46.3	43.8	41.0	38.5	38.1	36.0	40.3	43.1	45.2
8	51.6	51.2	50.5	46.3	44.5	41.0	37.8	38.8	35.3	40.3	43.1	45.2
9	52.3	50.5	50.5	46.3	44.5	40.3	37.8	38.8	35.0	42.4	43.1	45.2
10	52.3	50.5	50.5	46.3	44.1	40.3	37.8	38.5	35.0	42.4	41.3	45.2
11	52.3	50.5	50.5	46.3	44.1	40.3	37.8	38.1	35.3	42.4	41.3	45.2
12	52.3	50.5	50.5	46.3	44.1	40.3	37.8	37.4	35.7	41.7	41.3	45.2
13	52.3	49.8	50.5	46.3	44.1	40.3	37.8	37.4	35.7	41.7	42.7	45.2
14	52.3	50.9	50.5	45.6	44.1	41.7	37.4	37.8	35.3	41.7	43.8	45.2
15	52.3	52.3	50.5	45.2	44.1	40.3	36.7	37.8	36.7	41.7	43.1	45.6
16	52.3	52.3	50.5	44.8	44.1	40.3	36.7	37.8	37.8	41.7	43.1	45.6
17	53.0	52.3	50.5	45.2	44.1	38.8	38.1	37.1	37.8	41.7	43.8	45.9
18	53.0	52.3	50.5	45.2	43.4	38.4	39.6	37.1	37.8	41.7	43.1	45.9
19	53.0	52.3	50.5	44.8	43.4	39.6	39.6	36.7	37.8	41.7	43.1	46.3
20	53.0	52.3	50.5	44.5	43.4	39.6	39.6	36.4	37.8	41.7	43.8	46.3
21	53.0	51.2	50.5	43.4	43.4	38.8	38.8	36.7	37.8	41.7	45.2	46.3
22	53.0	51.2	50.5	42.7	43.1	38.8	38.1	36.7	37.8	41.7	45.2	46.6
23	53.0	50.5	50.5	42.7	43.1	38.5	38.1	36.4	37.8	41.7	45.2	46.6
24	53.0	50.5	50.5	44.5	43.1	38.5	38.8	36.4	37.8	42.4	45.2	46.6
25	52.6	50.5	50.5	45.2	43.1	38.5	43.8	36.0	37.4	43.8	45.2	47.0
26	52.6	49.4	50.5	44.8	43.1	38.5	44.5	35.3	37.1	43.8	45.2	47.0
27	52.6	48.4	49.8	43.8	43.1	38.8	42.4	35.0	37.1	43.8	45.2	47.0
28	52.6	51.2	49.8	43.8	43.1	41.0	40.3	36.0	39.6	43.8	44.5	47.0
29	52.6	51.2	49.8	43.1	43.1	39.6	39.6	36.7	42.7	43.8	44.5	47.0
30	52.6		49.8	42.7	41.7	39.6	39.6	36.7	41.1	43.8	44.5	47.0
31	52.6		49.8		41.0		38.8	36.4		43.8		47.0
Sum	1,628.9	1,484.4	1,563.4	1,359.8	1,349.5	1,196.2	1,208.7	1,159.1	1,110.2	1,299.7	1,312.4	1,423.5
Current Year 1984									Period 1969-1984			
Month	Extreme Gage Feet		Extreme Second-Feet			Average Second-Feet	Total Acre-Feet	Acre-Feet				
	High	Low	Day	High	Low			Average	Maximum	Minimum		
Jan.			3	54.7	1	50.9	52.6	3,230	3,429	4,720	349	
Feb.			115	52.3	27	48.4	51.2	2,944	3,123	4,207	381	
Mar.			1	51.2	127	49.8	50.5	3,101	3,386	4,574	526	
Apr.			1	47.7	122	42.7	45.2	2,696	3,227	4,345	636	
May			1	44.5	31	41.0	43.4	2,675	3,273	4,540	721	
June			1	41.7	18	38.4	39.9	2,372	3,056	4,071	678	
July			26	44.5	115	36.7	38.8	2,397	3,089	4,367	769	
Aug.			1	39.9	27	35.0	37.4	2,300	3,134	4,321	782	
Sept.			29	42.7	1	35.0	37.1	2,202	3,150	4,417	782	
Oct.			125	43.8	1	40.3	42.0	2,576	3,464	4,521	1,097	
Nov.			121	45.2	110	41.3	43.8	2,603	3,441	4,847	1,282	
Dec.			125	47.0	1	45.2	45.9	2,823	3,557	4,709	1,398	
Yearly	Meters		Cubic Meters per Second			Thousands of Cubic Meters						
				1.55		0.99	1.25	39,372	48,512	63,943	12,152	

Ø Mean daily

! And other days

* Partly estimated

‡ Estimated

ARROYO DEL BUEY AND ARROYO DE LA TREINTA Y UNA NEAR CD. ACUNA, COAHUILA

ARROYO DEL BUEY

DESCRIPTION: Cipolletti weir of 35.3 second-foot (1 m³/sec) capacity, located at latitude 29°24'20", longitude 101°02'25", 0.2 creek mile (300 m) from the confluence with the Rio Grande, and about 8.5 miles (13.7 km) northwest of Cd. Acuna, Coahuila. This stream enters the Rio Grande from the Mexican side at river mile 570.4 (918.0 km), 3.5 river miles (5.6 km) downstream from Amistad Dam and 9.4 river miles (15.2 km) upstream from the international highway bridge between Del Rio, Texas and Cd. Acuna, Coahuila. The elevation of the zero of the gage has not been determined.

RECORDS: Based on periodic staff gage readings and the weir discharge table. Mean daily discharges determined by prorating between readings. Records available: November 1961 through 1984.

REMARKS: The flow of this stream is not modified by diversions or storage. Prior to 1969 discharges were based on a continuous record of gage heights and the weir discharge table. Storm flow is deducted and not included in the tabulation below. This station was established for investigational purposes in connection with Amistad Dam to determine what effect storage in Amistad Reservoir will have on the flow of this stream. At approximately 0.3 creek mile (0.5 km) upstream from the weir, four springs have emerged since Amistad Reservoir storage began. Backwater from the Rio Grande will affect the flow of this stream when the flow in the river is approximately 20,000 second-feet (566 m³/sec).

Current Year 1984								Period Nov. 1961-1984			
Month	Extreme Gage Feet		Extreme Second-Feet			Average Second-Feet	Total Acre-Feet	Acre-Feet			
	High	Low	Day	High	Day			Low	Average	Maximum	Minimum
Jan.			! 1	7.1	! 1	7.1	7.1	437	309	528	6.8
Feb.			! 1	7.1	! 1	7.1	7.1	408	280	477	5.4
Mar.			! 1	7.1	31	6.7	6.9	426	304	520	9.3
Apr.			! 1	6.7	128	6.4	6.6	391	325	540	6.3
May			! 1	6.4	! 1	6.4	6.4	394	312	544	10.9
June			! 1	6.4	! 1	6.4	6.4	381	305	492	6.3
July			31	7.0	! 1	6.4	6.7	410	299	503	6.5
Aug.			! 5	7.1	130	6.5	5.8	421	321	517	6.7
Sept.			128	7.3	! 2	6.4	6.8	406	327	493	6.6
Oct.			! 1	7.4	120	7.2	7.3	448	350	544	6.5
Nov.			30	7.4	! 1	7.1	7.2	429	314	515	6.3
Dec.			130	7.8	! 1	7.4	7.6	465	319	538	6.5
				7.8		6.4	6.9	5,016	3,765	6,031	216.8
Yearly	Meters		Cubic Meters per Second			Thousands of Cubic Meters					
				0.22		0.18	0.20	5,187	4,644	7,438	267

ARROYO DE LA TREINTA Y UNA

DESCRIPTION: Cipolletti weir of 35.3 second-foot (1 m³/sec) capacity, located at latitude 29°22'35", longitude 101°01'15", 0.6 creek mile (900 m) from the confluence with the Rio Grande, and about 6.5 miles (10.5 km) northwest of Cd. Acuna, Coahuila. This stream enters the Rio Grande from the Mexican side at river mile 567.6 (913.5 km), 6.3 river miles (10 km) downstream from Amistad Dam and 6.6 river miles (10.6 km) upstream from the international highway bridge between Del Rio, Texas and Cd. Acuna, Coahuila. The elevation of the zero of the gage has not been determined.

RECORDS: Based on periodic staff gage readings and the weir discharge table. Mean daily discharges determined by prorating between readings. Records available: May 1961 through 1984.

REMARKS: The flow of this stream is very uniform during periods of dry weather and is not modified by diversions or storage. Prior to 1969 discharges were based on a continuous record of gage heights and the weir discharge table. Storm flow is deducted and not included in tabulation below. This station was established for investigational purposes in connection with Amistad Dam to determine what effect storage in Amistad Reservoir will have on the flow of this stream. It is estimated that backwater from the Rio Grande will affect the flow at this station only during times of extremely high releases.

Current Year 1984								Period #May 1961-1984			
Month	Extreme Gage Feet		Extreme Second-Feet			Average Second-Feet	Total Acre-Feet	Acre-Feet			
	High	Low	Day	High	Day			Low	Average	Maximum	Minimum
Jan.			! 1	3.5	121	3.3	3.4	208	169	282	15.2
Feb.			! 1	3.3	! 2	3.2	3.2	184	151	257	13.9
Mar.			! 1	3.2	! 1	3.2	3.2	197	167	327	14.2
Apr.			! 1	3.2	129	2.8	3.0	180	176	302	10.5
May			! 1	2.8	! 1	2.8	2.8	172	167	262	5.9
June			! 1	2.8	129	2.5	2.7	160	153	254	4.2
July			! 1	2.5	! 1	2.5	2.5	154	154	253	0
Aug.			! 1	2.5	! 1	2.5	2.5	154	161	323	0
Sept.			129	2.8	! 1	2.5	2.6	156	174	273	13.1
Oct.			31	4.3	! 1	2.8	3.5	217	184	282	12.1
Nov.			129	5.1	! 1	4.3	5.2	310	174	310	14.2
Dec.			4	6.4	31	3.4	5.0	310	177	310	15.2
				6.4		2.5	3.3	2,402	2,006	3,264	250.4
Yearly	Meters		Cubic Meters per Second			Thousands of Cubic Meters					
				0.18		0.07	0.09	2,953	2,474	4,025	308.6

∅ Mean daily

Some months missing

! And other days

MARIS SPRING NEAR CD. ACUNA, COAHUILA

DESCRIPTION: Cipolletti weir of 106 second-foot (3 m³/sec) capacity and staff gage located at the spring about 100 feet (30 m) from the right bank of the Rio Grande at latitude 29°24'00", longitude 101°01'40", and about 8 miles (12.9 km) northwest of Cd. Acuna, Coahuila. This spring enters the Rio Grande at river mile 569.9 (917.2 km), 8.9 river miles (14.3 km) upstream from the international highway bridge between Del Rio, Texas and Cd. Acuna, Coahuila and 4.0 river miles (6 km) downstream from Amistad Dam. The elevation of the zero of the gage has not been determined.

RECORDS: Based on periodic staff gage readings and the weir discharge table. Mean daily discharges determined by prorating between readings. Records available: November 14, 1961 through February 1984.

REMARKS: The flow of this spring is very uniform during periods of dry weather and is not modified by diversions or storage. This station was established for investigational purposes in connection with Amistad Dam to determine what effect storage in Amistad Reservoir will have on the flow of this spring. All storm water from surface runoff passing this station is deducted and is not included in the tabulation below. Prior to May 1969 the weir had an 11.1 second-foot (315 l/sec) capacity. Beginning March 1, 1984, discharge computations were temporarily discontinued due to leakage under the weir.

Mean Daily Discharge in Second-Feet 1984 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	6.4	5.7										
2	6.4	5.7										
3	6.4	5.7										
4	6.4	5.7										
5	6.4	5.7										
6	6.4	5.7										
7	6.4	5.7										
8	6.4	5.7										
9	8.5	5.7										
10	9.2	5.7										
11	8.5	5.7										
12	7.8	5.7										
13	7.4	5.7										
14	7.4	5.3										
15	7.1	5.3										
16	7.1	5.3										
17	6.4	5.3										
18	6.4	5.3										
19	6.4	5.3										
20	6.4	5.3										
21	6.4	4.9										
22	6.4	4.9										
23	6.4	4.9										
24	6.4	4.9										
25	6.0	4.9										
26	6.0	4.9										
27	6.0	4.9										
28	6.0	4.9										
29	6.0	4.9										
30	6.0											
31	6.0											

Sum
207.4 155.3

Month	Extreme Gage Feet		Current Year 1984				Average Second-Feet	Total Acre-Feet	Period #Dec. 1951-Feb. 1984		
	High	Low	Extreme Second-Feet		Day	Low			Average	Maximum	Minimum
			High	Low							
Jan.			10	9.2	125	6.0	6.7	439	476	934	4.4
Feb.			11	5.7	121	4.9	5.3	307	421	843	4.1
Mar.											
Apr.											
May											
June											
July											
Aug.											
Sept.											
Oct.											
Nov.											
Dec.											
Yearly	Meters		Cubic Meters per Second				Thousands of Cubic Meters				

∅ Mean Daily

! And other days

Some months missing

EIGHT MILE CREEK NEAR DEL RIO, TEXAS

DESCRIPTION: Concrete wall with 90° V-notch weir of 6.9 second-foot (0.2 m³/sec) capacity, bubbler gage, and water-stage recorder located on the left bank at latitude 29°24'00", longitude 101°00'55", 0.8 creek mile (1.3 km) from the confluence with the Rio Grande, and about 8 miles (12.9 km) northwest of Del Rio, Texas. This stream enters the Rio Grande from the United States side at river mile 569.3 (916.2 km), 4.6 river miles (7.4 km) downstream from Amistad Dam, and 8.3 river miles (13.4 km) upstream from the international highway bridge between Del Rio, Texas and Cd. Acuna, Coahuila. The elevation of the zero of the gage is 913.97 feet (278.58 m) above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on a continuous record of gage heights and the weir discharge table. Records available: March 1961 through 1984.

REMARKS: The source of flow of this stream is from surface runoff during rainy periods and the subsequent flow from underground seepage as a result of such rains. All storm water from surface runoff passing this station is deducted and is not included in the tabulation below. This station was established for investigational purposes in connection with Amistad Dam to determine what effect storage in Amistad Reservoir may have on the flow of this stream.

EXTREME FLOWS FROM RECORDS:

		Average Flow in Second-Feet (Cubic Meters per Second)			
Daily:	Max. 15.9 (0.45)	July 23 & 24, 1976	Min. 0	Occasionally	
Monthly:	Max. 6.3 (0.18)	July 1976	Min. 0	Occasionally	
Yearly:	Max. 4.0 (0.11)	1974 & 1975	Min. 0	Several years	

Mean Daily Discharge in Second-Feet 1984 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	2.0	2.3	2.2	2.2	1.6	2.0	1.2	1.3	1.1	1.4	1.4	1.6
2	2.3	2.3	2.2	2.0	1.5	2.0	1.2	1.3	1.1	1.3	1.4	1.5
3	2.5	2.3	2.1	1.9	1.5	2.2	1.2	1.3	1.2	1.4	1.5	1.5
4	2.3	2.3	2.1	1.8	1.4	2.3	1.2	1.3	1.2	1.3	1.5	1.6
5	2.3	2.3	2.1	1.8	1.5	2.4	1.1	1.3	1.2	1.2	1.4	1.6
6	2.3	2.2	2.1	1.8	1.5	2.4	1.0	1.2	1.2	1.2	1.4	1.7
7	2.3	2.2	2.1	1.9	1.4	1.7	1.0	1.2	1.2	1.2	1.5	1.7
8	2.3	2.2	2.1	2.0	1.4	1.5	1.0	1.2	1.2	1.3	1.5	1.7
9	2.5	2.2	2.1	1.9	1.5	1.5	1.0	1.2	1.2	1.4	1.5	1.7
10	2.4	2.2	2.2	1.8	1.5	1.4	1.1	1.2	1.2	1.4	1.5	1.7
11	2.3	2.2	2.2	1.9	1.6	1.4	1.1	1.2	1.2	2.3	1.5	1.7
12	2.3	2.3	2.2	1.9	1.6	1.4	1.1	1.2	1.2	2.2	1.5	1.7
13	2.3	2.2	2.2	1.9	1.6	1.3	1.1	1.1	1.2	1.9	1.5	1.8
14	2.3	2.2	2.2	1.8	1.8	1.4	1.1	1.1	1.2	2.0	1.5	1.7
15	2.3	2.2	2.1	1.8	1.9	1.3	1.2	1.2	1.3	1.8	1.5	1.8
16	2.3	2.2	2.2	1.9	2.0	1.3	1.2	1.2	1.4	1.7	1.5	1.8
17	2.3	2.3	2.1	1.9	2.1	1.3	1.2	1.2	1.3	1.7	1.6	1.7
18	2.3	2.3	2.2	1.9	2.3	1.3	1.2	1.2	1.2	1.7	1.7	1.7
19	2.4	2.2	2.1	1.8	2.2	1.2	1.2	1.2	1.2	1.6	1.7	1.7
20	2.5	2.3	2.1	1.8	1.8	1.2	1.2	1.2	1.2	1.6	1.8	1.8
21	2.5	2.3	2.1	1.7	1.7	1.2	1.1	1.2	1.3	1.6	1.8	1.8
22	2.5	2.3	2.1	1.8	1.6	1.2	1.1	1.2	1.3	1.5	1.7	1.7
23	2.5	2.3	2.0	1.8	1.5	1.2	1.2	1.2	1.3	1.6	1.6	1.7
24	2.4	2.3	2.1	1.7	1.6	1.2	1.2	1.2	1.3	1.6	1.8	1.7
25	2.3	2.2	2.2	1.7	1.6	1.2	1.4	1.1	1.4	1.5	2.0	1.7
26	2.3	2.1	2.2	1.6	1.7	1.1	1.5	1.2	1.4	1.5	1.8	1.8
27	2.2	2.1	2.1	1.6	1.7	1.2	1.6	1.2	1.4	1.5	1.5	1.8
28	2.2	2.2	2.1	1.6	1.8	1.2	1.4	1.1	1.5	1.4	1.6	1.8
29	2.2	2.2	2.3	1.6	1.9	1.3	1.4	1.1	1.6	1.4	1.6	1.8
30	2.2	2.2	2.0	1.6	1.9	1.2	1.4	1.1	1.5	1.4	1.6	1.9
31	2.3		2.1		1.9		1.4	1.1		1.4		3.0
Sum	72.1	64.9	66.2	54.4	52.6	44.5	37.3	37.0	38.2	48.0	47.4	54.4

Current Year 1984								Period #March 1961-1934			
Month	Extreme Gage Feet **		# Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet		
	High	Low	High		Low				Average	Maximum	Minimum
Jan.	1.77	0.92	! 3	2.5	1	2.0	2.3	143	113	294	0
Feb.	.98	.88	! 1	2.3	126	2.1	2.2	129	102	273	0
Mar.	1.03	.88	29	2.3	123	2.0	2.1	131	106	271	0
Apr.	1.90	.80	1	2.2	126	1.6	1.8	108	105	244	0
May	2.31	.75	18	2.3	7	1.4	1.7	104	104	224	0
June	1.46	.70	! 5	2.4	26	1.1	1.5	38.3	94.8	214	0
July	2.48	.68	26	1.6	! 7	1.0	1.2	74.0	98.9	390	0
Aug.	.79	.67	! 1	1.3	128	1.1	1.2	73.4	103	299	0
Sept.	2.74	.69	29	1.6	1	1.1	1.3	75.8	94.8	240	0
Oct.	2.15	.74	11	2.3	! 5	1.2	1.5	95.2	113	334	0
Nov.	1.82	.79	25	2.0	! 1	1.4	1.6	94.0	106	321	0
Dec.	2.78	.82	31	3.0	! 2	1.5	1.8	108	111	283	0
Yearly	2.78	0.67		3.0		1.0	1.7	1,223.7	1,251.5	2,892	3.4
	Meters		Cubic Meters per Second				Thousands of Cubic Meters				
	0.85	0.20		0.08		0.03	0.05	1,509	1,544	3,557	4.2

Some months missing

** Includes storm runoff

Ø Mean daily

! And other days

MCKEE SPRING NEAR DEL RIO, TEXAS

DESCRIPTION: This spring is located on the left flood plain of the Rio Grande at latitude 29° 23' 35", longitude 101° 01' 15", about 150 feet (45.7 m) from the edge of the low-flow channel and about 8 miles (12.9 km) north-west of Del Rio, Texas. Water from this spring enters the Rio Grande at river mile 569.1 (915.9 km) 4.8 river miles (7.7 km) downstream from Amistad Dam. The zero of the gage is 894.59 feet above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 25 discharge measurements during the year. Mean daily discharges determined by prorating between measurements. Records available: November 1961 through 1984.

REMARKS: The flow of this spring is uniform during periods of dry weather and is not modified by diversions or storage. It is estimated that backwater from the Rio Grande will reach the emergence of this spring when the river flow is approximately 14,000 second-feet (396 m³/sec). This station was established for investigational purposes in connection with Amistad Dam to determine what effect storage in Amistad Reservoir may have on the flow of this spring. In April 1977 the water began to leak under the weir, causing the gage height-discharge relationship to become ineffective.

EXTREME FLOWS FROM RECORDS:

Average Flow in Second-Feet (Cubic Meters per Second)				
Daily:	Max. 11.0 (0.31)	Feb. 16, 1983	Min. 0	Occasionally
Monthly:	Max. 9.2 (0.26)	Feb. 1983	Min. 0	Occasionally
Yearly:	Max. 7.8 (0.22)	1979	Min. 0	1963

Mean Daily Discharge in Second-Feet 1984 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	5.0	* 4.9	* 5.4	5.9	6.2	5.0	4.8	* 4.8	4.7	5.3	4.5	4.4
2	5.0	4.9	5.4	5.9	* 6.2	5.0	4.8	4.8	4.6	5.3	4.5	4.4
3	5.0	4.9	5.4	6.0	5.2	5.1	4.8	4.8	4.6	* 5.3	4.5	4.4
4	* 5.0	4.9	5.4	* 6.0	6.2	5.2	4.8	4.8	* 4.5	5.3	4.5	4.3
5	5.0	4.9	5.3	6.0	6.2	5.3	* 4.8	4.9	4.6	5.2	4.4	* 4.3
6	5.0	4.9	5.3	5.9	6.1	5.3	4.8	4.9	4.6	5.2	4.4	4.4
7	5.1	4.9	5.3	5.9	6.1	5.4	4.8	4.9	4.6	5.1	* 4.4	4.4
8	5.1	4.9	5.3	5.9	6.1	* 5.5	4.8	4.9	4.7	5.1	4.4	4.4
9	5.1	4.8	5.3	5.9	6.0	5.4	4.8	4.9	4.7	5.0	4.4	4.4
10	5.1	4.8	5.3	5.8	6.0	5.4	4.8	4.9	4.7	5.0	4.4	4.5
11	5.1	4.8	5.2	5.8	5.0	5.3	4.7	4.9	4.7	5.0	4.4	4.5
12	5.2	4.8	5.2	5.8	6.0	5.2	4.7	5.0	4.7	4.9	4.5	4.5
13	5.2	4.8	5.2	5.7	5.9	5.2	4.7	5.0	4.3	4.8	4.5	4.6
14	5.2	4.8	* 5.2	5.7	5.9	5.1	4.7	5.0	4.3	4.8	4.5	4.5
15	5.2	* 4.8	5.2	5.7	5.9	5.0	4.7	* 5.0	4.3	4.8	4.5	4.6
16	5.3	4.8	5.3	5.7	* 5.9	5.0	4.6	5.0	4.8	4.7	4.5	4.6
17	5.3	4.9	5.3	5.6	* 5.8	4.9	4.6	5.0	4.3	* 4.6	4.5	4.7
18	* 5.3	4.9	5.4	* 5.6	5.8	4.8	* 4.6	4.9	4.8	4.6	4.5	4.7
19	5.3	4.9	5.4	5.6	5.7	4.8	4.6	4.9	* 4.9	4.6	4.5	4.7
20	5.2	5.0	5.4	5.7	5.6	* 4.7	4.6	4.9	4.9	4.6	4.5	4.7
21	5.2	5.0	5.5	5.7	5.5	4.7	4.6	4.9	4.9	4.5	* 4.5	4.8
22	5.2	5.0	5.5	5.8	5.4	4.7	4.6	4.9	5.0	4.6	4.5	4.3
23	5.2	5.1	5.5	5.3	5.4	4.7	4.7	4.8	5.0	4.6	4.5	4.3
24	5.1	5.1	5.5	5.9	5.3	4.7	4.7	4.8	5.0	4.6	4.5	4.3
25	5.1	5.1	5.6	5.9	5.2	4.8	4.7	4.3	5.1	4.5	4.4	4.3
26	5.1	5.2	5.7	5.9	5.1	4.3	4.7	4.8	5.1	4.6	4.4	4.3
27	5.0	5.2	5.7	6.0	5.0	4.8	4.7	4.8	5.1	4.6	4.4	4.3
28	5.0	5.2	5.7	6.0	5.0	4.9	4.7	4.7	5.2	4.5	4.4	4.3
29	5.0	5.3	5.8	6.1	4.9	4.3	4.3	4.7	5.2	4.5	4.4	4.3
30	5.0		5.8	6.1	4.3	4.8	4.3	4.7	5.2	4.5	4.4	4.3
31	4.9		5.3		4.9		4.3	4.7		4.5		4.3
Sum	158.5	143.5	168.4	175.3	176.3	150.3	146.3	150.3	145.2	149.4	133.7	142.9

Current Year 1984								Period Nov. 1961-1984			
Month	Extreme Gage Feet		Extreme Second-Feet			Average Second-Feet	Total Acre-Feet	Acre-Feet			
	High	Low	Day	High	Day			Low	Average	Maximum	Minimum
Jan.			116	5.3	31	4.9	314	295	526	0	
Feb.			29	5.3	! 9	4.8	285	274	509	0	
Mar.			129	5.8	111	5.2	334	297	527	0	
Apr.			129	5.1	117	5.6	348	231	490	0	
May			! 1	6.2	30	4.3	350	318	513	.7	
June			! 1	5.5	120	4.7	293	299	470	0	
July			! 1	4.8	116	4.6	290	301	551	0	
Aug.			112	5.0	128	4.7	299	301	504	0	
Sept.			128	5.2	! 2	4.6	233	296	479	0	
Oct.			! 1	5.3	129	4.5	296	307	519	0	
Nov.			! 1	4.5	! 5	4.4	265	290	515	0	
Dec.			121	4.8	! 4	4.3	283	294	483	0	
Yearly				6.2		4.3	5.0	3,650	3,554	5,557	0.7
	Meters		Cubic Meters per Second			Thousands of Cubic Meters					
				0.18		0.12	0.14	4,592	4,334	5,973	0.9

* Discharge measurement made on this day ! Mean daily ! And other days

CANTU SPRING NEAR DEL RIO, TEXAS

DESCRIPTION: Concrete enclosure located at the spring source in the channel of a small tributary to Cienegas Creek at latitude 29°23'15", longitude 100°56'00", about 2.5 miles (4.0 km) northwest of Del Rio, Texas and 3.5 creek miles (5.6 km) from the confluence with the Rio Grande. Cienegas Creek enters the Rio Grande at river mile 562.9 (905.8 km), 1.8 river miles (3.0 km) upstream from the international highway bridge between Del Rio, Texas and Cd. Acuna, Coahuila. The elevation of the zero of the gage has not been determined.

RECORDS: Based on 52 discharge measurements during the year. Mean daily discharges determined by prorating between measurements. Records available: March 1961 through 1984.

REMARKS: The flow of this spring is very uniform and is not modified by diversions or storage. A weir was installed on May 24, 1961 and removed November 21, 1962. This station was established for investigational purposes in connection with Amistad Dam to determine what effect storage in Amistad Reservoir may have on the flow of this spring.

EXTREME FLOWS FROM RECORDS:

		Average Flow in Second-Feet (Cubic Meters per Second)				
Daily:	Max. 10.1 (0.29)	October 20, 1982		Min. 0	Occasionally	
Monthly:	Max. 9.3 (0.26)	March 1982		Min. 0	Occasionally	
Yearly:	Max. 8.3 (0.24)	1982		Min. 0	1963	

Mean Daily Discharge in Second-Feet 1984 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	7.0	* 6.9	* 7.4	7.0	5.6	8.0	5.8	* 5.3	5.7	5.6	5.5	5.0
2	7.0	5.8	7.2	7.1	* 5.4	7.3	5.8	5.2	5.8	5.6	5.4	5.0
3	7.0	6.8	7.0	7.3	5.5	7.5	5.7	5.1	5.8	* 5.7	5.3	5.0
4	* 7.0	6.7	6.8	* 7.4	5.7	7.3	5.7	5.0	5.9	5.7	5.2	5.0
5	7.0	6.6	6.5	7.4	5.9	7.1	* 5.7	5.0	5.9	5.8	5.1	* 5.0
6	7.1	6.5	6.3	7.3	6.1	* 6.9	5.7	4.9	* 6.0	5.8	5.0	5.0
7	7.1	6.5	* 6.1	7.2	6.3	6.7	5.6	4.8	5.9	5.8	* 4.9	4.9
8	7.1	* 6.4	6.1	7.2	6.5	5.6	5.6	* 4.7	5.8	5.8	4.9	4.9
9	7.1	6.5	6.0	7.2	6.7	6.4	5.5	4.7	5.8	5.9	4.9	4.8
10	7.2	6.6	6.0	7.1	* 6.9	6.2	5.6	4.7	5.7	* 5.9	4.9	4.7
11	* 7.2	6.7	6.0	* 7.0	6.9	6.1	* 5.6	4.7	* 5.6	5.9	4.9	4.7
12	7.3	6.7	6.0	* 7.0	7.0	5.9	5.6	4.8	* 5.5	5.9	5.0	* 4.6
13	7.3	5.8	5.9	7.0	7.0	5.8	5.6	4.8	5.5	6.0	5.0	4.6
14	7.4	6.9	* 5.9	6.9	7.1	* 5.6	5.6	4.8	5.5	6.0	* 5.0	4.5
15	7.4	* 7.0	6.1	6.9	7.1	5.7	5.5	* 4.8	5.5	6.0	4.9	4.5
16	7.5	7.1	6.2	6.9	7.2	5.8	5.5	4.9	5.5	6.0	4.8	4.4
17	7.5	7.1	5.4	6.8	* 7.2	6.0	5.5	4.9	5.5	* 6.1	4.7	4.4
18	* 7.6	7.2	6.5	* 6.8	7.2	6.1	* 5.5	5.0	5.5	6.0	4.6	4.4
19	7.5	7.3	6.7	6.8	7.2	6.2	5.5	5.0	* 5.4	6.0	4.5	* 4.3
20	7.4	7.4	6.8	6.9	7.1	* 6.3	5.6	5.1	5.4	5.0	4.4	4.4
21	7.3	7.4	* 7.0	6.9	7.1	6.2	5.7	5.1	5.3	6.0	* 4.3	4.4
22	7.3	* 7.5	6.9	6.9	7.0	6.2	5.8	* 5.1	5.3	5.9	4.4	4.5
23	7.2	7.5	6.8	6.9	* 7.0	6.1	5.8	5.2	5.2	5.9	4.5	4.5
24	7.1	7.5	6.7	7.0	7.0	7.2	6.1	5.9	5.3	5.2	* 5.9	4.6
25	* 7.0	7.5	6.7	* 7.0	7.4	6.0	* 5.9	5.3	* 5.1	5.8	4.5	4.6
26	7.0	7.4	6.6	6.8	7.6	6.0	5.8	5.4	5.2	5.8	4.7	* 4.7
27	7.0	7.4	6.5	6.5	7.8	* 5.9	5.8	5.4	5.3	5.8	4.3	4.8
28	7.0	7.4	* 5.4	6.3	8.0	5.9	5.7	5.5	5.3	5.7	* 4.9	4.9
29	6.9	7.4	6.5	6.1	8.2	5.3	5.6	* 5.5	5.4	5.6	4.9	5.0
30	5.9		6.7	5.9	* 8.4	5.8	5.5	5.6	5.5	5.6	5.0	5.1
31	6.9		6.8		8.2		5.4	5.6		* 5.6		5.2
Sum	222.3	203.5	201.5	207.5	215.5	190.0	175.3	157.3	156.0	181.1	145.6	146.4

Current Year 1984								Period March 1961-1984			
Month	Extreme Gage Feet		Extreme Second-Feet		Average Second-Feet	Total Acre-Feet	Acre-Feet				
	High	Low	Day	Day			Average	Maximum	Minimum		
Jan.			13	7.6	129	5.9	7.2	441	316	565	0
Feb.			122	7.5	3	6.4	7.0	404	283	478	0
Mar.			1	7.4	113	5.9	6.5	400	301	569	0
Apr.			! 4	7.4	30	5.9	6.9	412	232	436	0
May			30	8.4	2	5.4	7.0	427	234	538	0
June			1	8.0	14	5.6	6.3	377	259	331	0
July			124	5.9	31	5.4	5.7	348	274	505	0
Aug.			130	5.6	! 8	4.7	5.1	312	277	326	0
Sept.			6	6.0	25	5.1	5.5	329	293	320	0
Oct.			17	5.6	! 1	5.6	5.3	359	315	367	0
Nov.			1	5.5	21	4.3	4.9	239	301	321	0
Dec.			31	5.2	19	4.3	4.7	290	312	344	0
Yearly	Meters		Cubic Meters per Second		Thousands of Cubic Meters						
			0.24	0.12	0.17			5,413	4,313	7,423	0

* Discharge measurement made on this day Ø Mean daily ! And other days

CIENEGAS CREEK NEAR DEL RIO, TEXAS

DESCRIPTION: Gravity wells and water-stage recorders located, one each, on the right bank of the Cienegas Creek at latitude 29°21'10", longitude 100°56'35", 0.5 creek mile (0.8 km) from the confluence with the Rio Grande; and for the Briggs Farm ditch, on the right bank of a concrete flume at latitude 29°21'40", longitude 100°56'30", 2,900 feet (884 m) from the ditch intake which branches off the right bank of Cienegas Creek immediately upstream from a small diversion dam across the creek, and about 2.5 miles (4.0 km) west of Del Rio, Texas. The point of diversion is 1.8 creek miles (2.9 km) from the confluence with the Rio Grande. Cienegas Creek enters the Rio Grande at river mile 562.9 (905.8 km), 1.8 river miles (3.0 km) upstream from the international highway bridge between Del Rio, Texas and Cd. Azuna, Coahuila. The elevation of the zero of the gages has not been determined.

RECORDS: Based on 51 and 52 discharge measurements at Cienegas Creek and Briggs Farm ditch, respectively, during the year and a continuous record of gage heights. Mean daily discharge computations determined by combining the two records for the total yield of the springs. Records available: March 1955 through 1984. Discharge measurement data available since November 1952. Records are also available from September 1931 through June 1935 for a station 0.3 creek mile (0.5 km) downstream. The station was moved 0.2 creek mile (0.3 km) upstream in June 1983.

REMARKS: Low flow of this stream is from springs, one of which is Cantu Spring, whose discharge is shown on page 39. The flow of this stream is modified by irrigation diversions through the Briggs Farm ditch. During 1984 there were no appreciable diversions from the creek, other than through the Briggs Farm ditch, whose net amount of diversion is included in the tabulation below. All storm flow passing this station is deducted and is not included in the tabulation. These stations were established for investigational purposes in connection with Amistad Dam to determine what effect storage in Amistad Reservoir may have on the flow of these springs.

EXTREME FLOWS FROM RECORDS:

		Average Flow in Second-Feet (Cubic Meters per Second)			
Daily:	Max. 42.7 (1.21)	August 12, 1972	Min. 0.5 (0.01)	April 21, 1956	
Monthly:	Max. 24.8 (0.70)	July 1976	Min. 0.8 (0.02)	August 1957	
Yearly:	Max. 17.0 (0.51)	1977	Min. 2.2 (0.06)	1968	

Mean Daily Discharge in Second-Feet 1984 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	15.3	14.7	15.2	15.3	12.6	12.0	8.8	9.3	8.4	10.5	10.1	10.7
2	16.3	15.2	14.8	15.4	13.2	12.2	8.4	9.2	8.2	10.5	9.8	10.7
3	16.0	15.5	14.2	14.3	12.4	11.2	8.8	9.2	8.2	10.4	9.4	10.6
4	15.8	14.9	15.2	14.1	12.3	10.9	9.3	8.9	9.0	10.5	10.0	10.6
5	15.6	14.4	15.7	15.1	11.9	10.2	8.1	8.5	9.1	10.6	10.2	10.5
6	15.3	15.0	15.6	14.1	11.5	11.0	8.1	8.4	9.1	10.6	10.0	10.5
7	15.1	15.7	15.0	16.0	10.2	11.3	8.7	8.9	8.9	10.5	10.1	10.4
8	15.1	16.2	15.4	16.1	10.4	11.9	8.8	9.0	8.8	9.4	10.1	10.2
9	17.9	15.7	14.8	14.4	10.3	11.7	9.5	9.2	7.9	10.4	10.7	10.1
10	15.7	14.4	15.1	13.5	9.6	10.7	9.5	9.7	8.2	11.0	10.5	10.7
11	15.5	15.0	15.5	13.5	8.7	9.6	9.4	9.5	8.6	19.5	9.0	10.6
12	15.4	15.8	15.6	12.6	8.4	9.6	9.4	8.4	9.2	21.0	8.8	10.4
13	15.3	14.5	14.8	12.6	7.7	10.1	9.2	8.4	9.2	17.7	8.9	10.6
14	14.1	15.2	15.2	13.3	7.4	11.0	8.3	9.3	8.6	17.2	9.7	9.9
15	15.5	15.0	14.9	10.4	8.4	10.3	8.2	10.0	8.7	15.1	9.5	11.5
16	15.4	14.1	14.5	12.0	9.1	10.0	8.5	10.0	9.2	13.8	9.3	11.6
17	15.4	15.3	14.4	13.6	13.0	10.0	8.7	9.9	9.3	12.6	9.2	11.7
18	15.4	15.3	14.1	13.7	10.6	10.0	8.1	9.7	9.4	12.8	8.7	11.0
19	15.4	15.4	12.8	14.8	12.0	9.9	7.4	9.4	9.3	12.2	9.2	11.0
20	15.3	15.5	13.1	10.9	11.7	9.9	6.9	9.7	9.5	12.6	10.4	10.4
21	15.4	15.8	13.7	9.3	11.0	9.5	6.1	9.3	8.6	12.1	9.2	10.3
22	15.4	15.0	14.6	9.8	11.1	9.8	4.9	9.0	8.8	11.6	9.8	10.4
23	15.5	15.2	14.8	13.0	11.8	9.9	4.3	8.9	8.9	11.9	10.4	10.4
24	14.8	15.6	14.9	13.7	12.6	9.2	5.1	8.9	8.9	12.1	11.1	10.5
25	15.1	14.7	15.5	13.5	8.5	8.3	8.3	9.0	9.0	12.2	11.3	10.5
26	14.8	14.1	15.3	13.1	7.7	8.5	13.2	8.9	8.9	12.3	11.0	11.3
27	14.7	14.8	15.4	12.3	8.0	9.0	9.9	8.8	8.9	12.3	10.8	11.2
28	14.5	14.9	13.8	12.4	7.4	9.2	8.5	8.8	10.7	11.7	10.8	11.7
29	14.3	15.0	13.1	11.7	9.9	9.0	8.2	8.9	12.4	11.6	10.8	11.7
30	13.8		13.2	11.9	11.1	8.6	8.6	8.8	10.6	11.6	10.8	11.6
31	14.9		13.5		11.0		8.8	8.4		11.2		19.7
Sum	474.0	437.9	453.7	395.7	321.5	304.6	257.0	282.4	272.5	399.5	299.6	343.2

Month	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Period March 1955-1984		
	High	Low	Day	High	Day	Low			Acre-Feet	Average	Maximum
							High	Low			
Jan.			9	17.9	30	13.8	15.3	940	805	1,242	134
Feb.			8	16.2	115	14.1	15.1	859	749	1,157	93.0
Mar.			5	15.7	19	12.8	14.6	900	774	1,185	102
Apr.			8	16.1	21	9.3	13.2	787	720	1,125	100
May			2	13.2	114	7.4	10.4	638	706	1,159	109
June			2	12.2	25	8.3	10.2	604	635	1,070	36.3
July			26	13.2	23	4.3	8.3	510	642	1,527	95.5
Aug.			16	10.0	5	9.4	9.1	560	654	1,241	48.4
Sept.			29	12.4	9	7.9	9.1	540	643	1,043	94.1
Oct.			12	21.0	8	9.4	12.6	772	756	1,135	150
Nov.			25	11.8	18	8.7	10.0	594	757	1,117	152
Dec.			31	19.7	14	9.9	11.1	581	792	1,158	133
Yearly				21.0		4.3	11.6	8,395	8,643	12,955	1,530.9
		Meters			Cubic Meters per Second			Thousands of		Cubic Meters	
				0.59		0.12	0.33	10,355	10,651	15,092	1,988

0 Mean daily

! And other days

RIO GRANDE AT DEL RIO, TEXAS AND CD. ACUNA, COAHUILA

DESCRIPTION: Cableway, gravity well, concrete control weir, water-stage recorders (graphic and digital) and binary decimal transmitter located on the right bank at latitude 29°19'40", longitude 100°55'50", and river mile 561.2 (903.2 km), 1,200 feet (366 m) upstream from the international highway bridge between Del Rio, Texas and Cd. Acuna, Coahuila and 12.7 river miles (20.4 km) downstream from Amistad Dam. The zero of the gage is 869.20 feet (264.93 m) above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 22 discharge measurements during the year, 14 by the United States Section and 8 by the Mexican Section of the Commission, and a continuous record of gage heights. Computations for high flows by shifting control methods. Low and medium flow computations based on a stable control weir rating curve defined by meter measurements. Records available: December 1923 through July 2, 1941 and January 1968 through 1984. Records are available from May 1900 through April 1915 for a station 12.2 miles (19.6 km) upstream; for December 1919 through March 1920 for a station 8.7 miles (14.0 km) upstream near McKee's Switch; from July 2, 1941 through 1954 and October 1960 through 1967 for a station 1,200 feet (366 m) downstream at the international highway bridge; and from September 1954 through 1994 for a station, Rio Grande below Amistad Dam, 10.6 miles (17.0 km) upstream.

REMARKS: Reservoirs, diversions, and drainage returns modify the river flow at this station. Except for tributary inflows and small intervening diversions below Amistad Dam, flow at this station, after May 31, 1968 is controlled largely by releases from Amistad Reservoir. The transmitter, operated in cooperation with the National Weather Service, relays gage height data upon interrogation by telephone via commercial circuits.

EXTREME FLOWS FROM RECORDS: The greatest recorded flow of 1,140,000 second-feet (32,300 m³/sec) occurred on June 28, 1954, with a gage height of 38.25 feet (11.66 m) at a station 1,200 feet (366 m) downstream. The lowest recorded flow was 124 second-feet (3.51 m³/sec) which occurred March 5 and 6, 1959, with a gage height of 1.24 feet (0.38 m).

Average Flow in Second-Feet (Cubic Meters per Second)**
 Daily: Max. 63,800 (1,810) Sept. 22, 1974 Min. 164 (4.64) Aug. 13, 1971
 Monthly: Max. 22,300 (632) Sept. 1974 Min. 188 (5.32) October 1971
 Yearly: Max. 5,170 (146) 1974 Min. 701 (19.9) 1972

Mean Daily Discharge in Second-Feet 1984 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1,590	1,830	1,820 *	3,890	971	594	2,290	3,500	3,360	1,260	579 *	579
2	1,610	1,830 *	1,820	4,150	1,930	594	2,770	3,520 *	3,120	1,220	579	579
3	1,670	1,830	1,840	4,980	10,000	594	2,880	3,530	3,140	1,250	579	579
4	1,570	1,830	1,840	4,800	11,900 *	1,050 *	3,510	3,540	3,140	1,170 *	579	595
5	1,610 *	1,830	1,840	5,400 *	11,900	1,800	3,500 *	3,550	3,200	1,130	579	1,110
6	1,570	1,840	1,840	7,670	11,700	1,840	3,470	3,540	3,160	1,030	591	1,320 *
7	1,590	1,830	1,850	7,560	9,390	1,810	3,460	3,540	3,150	913	594	1,400
8	1,650	1,840	1,850	7,560	6,870	1,810	3,420	3,540	2,780	919	594	1,220
9	1,310	1,860	1,850	7,960	6,790	1,810	3,510	3,460	2,720	917 *	594	1,180
10	624	1,860	1,850	9,610	7,590	1,800	3,480	3,500 *	2,780	902 *	594	1,170
11	624	1,860	1,850	9,640	8,530	1,900	3,480	3,540	2,700	933	594	1,180
12	624	1,860	1,860	8,330	8,510	1,800	3,490	3,540	2,670 *	885	594	1,180 *
13	624	1,830	1,850	4,730	8,430	1,810	3,490	3,270	2,660	885	594	1,170
14	379	724	1,970	1,670	8,430	1,820	3,490	2,480	2,670 *	915	594	1,140
15	609	650	2,190	1,650	8,520	1,820	3,500	2,680	2,690	903	596	1,450
16	609	638	2,460	1,250	7,890	1,830	3,500	2,630	2,180	917	609	1,500
17	559	630	2,500	1,030	6,490	1,830	3,490	2,740	2,150	904	609	1,500
18	557	685	2,500	915	5,920	1,740	3,510	2,800	1,540	887	609	1,510
19	550	696	2,400	677	5,910	1,850	3,500	2,250	1,330	938	609	1,500
20	565	703	2,490	562	5,900	1,860	3,500 *	2,810	1,310	945	606	1,500
21	552	594	2,410	675	5,320	1,860	3,490	2,820	1,310	864	565	1,510
22	557	1,530	2,480	591	2,380	1,860	3,490	3,080	1,310	870	569	1,510
23	563	1,860	2,740	597	929	1,850	3,500	3,970	1,310	866	579	1,510
24	550 *	1,850	2,610	592	790	1,860	3,510	4,040	1,310	878	604	1,500
25	569	1,840	2,610	611	814	1,840	3,780	4,020	1,310	871	592	1,500
26	560	1,810	2,620	633	666	1,970	3,560	3,980	1,300	868	579	1,510
27	569	1,780	2,610	807	552	2,300	3,510	3,940	1,310	607	574	1,500
28	555	1,800	2,620	971	687	2,300	3,490	3,920	1,360	550	579	1,480
29	555	1,800	2,900	971	687 *	2,310 *	3,490	3,900	1,330	559	579	1,510
30	1,370		4,020 *	971	609	2,300	3,480	3,940	1,270	579	579	1,520
31	1,840		3,890		594		3,490	3,580		579		1,710
Sum	28,955	43,620	72,080	101,953	168,119	52,322	106,030	105,150	65,070	27,915	17,675	40,122

Month	Extreme Gage Feet		Extreme Second-Feet			Average Second-Feet	Total	Acre-Feet			
	High	Low	Day	High	Low	Acre-Feet	Acre-Feet	Average	Maximum	Minimum	
								Day	Day	Day	
Jan.	2.29	1.62	13	1,940	17	536	934	57,431	90,525	221,105	14,497
Feb.	2.28	1.59	12	1,910	17	494	1,500	86,519	120,231	448,205	18,633
Mar.	3.02	2.24	29	4,630	11	1,810	2,330	142,969	137,291	382,036	17,298
Apr.	3.94	1.46	110	9,550	20	316	3,400	202,221	117,162	354,407	33,846
May	4.29	1.66	31	12,000	31	594	5,420	333,459	203,220	516,357	30,928
June	2.45	1.65	29	2,420	4	579	1,740	103,779	165,531	338,718	23,143
July	3.03	2.40	25	4,670	11	2,250	3,420	210,307	144,519	367,024	31,474
Aug.	3.08	1.46	124	4,900	19	327	3,390	208,562	169,223	670,572	28,826
Sept.	3.02	2.01	11	4,630	121	1,250	2,170	129,064	221,202	1,327,500	38,850
Oct.	2.26	1.56	13	1,850	121	453	900	55,369	166,890	815,207	11,578
Nov.	1.70	1.64	20	655	121	565	589	35,058	101,227	527,524	13,644
Dec.	2.39	1.64	31	2,220	3	565	1,290	79,581	80,153	228,774	13,918
Yearly	4.29	1.46		12,000		316	2,270	1,644,319	1,717,174	3,743,795	508,583
	Meters		Cubic Meters per Second			Thousands of Cubic Meters					
	1.31	0.44		340		8.95	64.3	2,028,235	2,118,100	4,617,971	627,337

** Period 1968-1984 * Discharge measurement made on this day † And other days
 # Values for January 1968 are Rio Grande near Del Rio less Arroyo Las Vacas flow

ARROYO DE LAS VACAS AT CD. ACUNA, COAHUILA

DESCRIPTION: Cableway with sit-down cable car, concrete wall with a V-shape concrete control weir of 353 second-foot (10 m³/sec) capacity, gravity well, and water-stage recorder located on the left bank at Cd. Acuna, Coahuila, latitude 29°19'45", longitude 100°57'20" and 1.8 creek miles (3 km) from the confluence with the Rio Grande. This stream enters the Rio Grande at river mile 561.0 (902.9 km) on the upstream side of the international highway bridge between Del Rio, Texas and Cd. Acuna, Coahuila and 12.9 river miles (20.7 km) downstream from Amistad Dam. The zero of the gage is 885.82 feet (270 m) above mean sea level, U.S.C.&G.S. datum.

RECORDS: Based on 11 discharge measurements during the year, 10 by the Mexican Section and 1 by the United States Section of the Commission, a stable rating curve up to 353 second-foot (10 m³/sec), which is the capacity of the weir, and a continuous record of gage heights. Computations by shifting control methods for flows exceeding the capacity of the weir. During 1934, the capacity of the weir was exceeded on May 17 and 18, July 25, September 28, and December 31. Records available: Occasional estimates from June 1935 to March 19, 1938 and a continuous record from March 20, 1938 through 1984.

REMARKS: Low flow of this stream is from springs and is modified by irrigation diversions upstream. On June 17, 1961, a flood destroyed the station, leaving the control wall under several feet of silt. The station was reconstructed in September and a V-shape concrete control weir with a capacity of 353 second-foot (10 m³/sec) constructed at this station, started operating December 14, 1961. On June 28, 1954, backwater from the Rio Grande reached an elevation of 902.49 feet (275.08 m) at this station. Records prior to 1965 were published under the title "Arroyo Las Vacas near Cd. Acuna, Coahuila."

EXTREME FLOWS FROM RECORDS: Momentary: Max. 63,570 second-foot (1,800 m³/sec) with a gage height of 25.26 feet (7.70 m) on June 17, 1961. Min. no flow several occasions in 1956, 1957, 1960, 1961, and September 1, 1967.

Average Flow in Second-Foot (Cubic Meters per Second)**

Daily:	Max. 23,940	(678)	June 17, 1961	Min. 0	Several days Dec. 1956, Jan. 1957, & Sept. 1, 1967
Monthly:	Max. 1,050	(29.8)	June 1951	Min. 0.4 (0.01)	Several months 1952, 1953, & 1954
Yearly:	Max. 96.7	(2.74)	1961	Min. 2.8 (0.08)	1952

Mean Daily Discharge in Second-Foot 1984 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	6.4	6.4	3.9	4.2	2.5	4.2	1.1	1.4	1.1	2.5	2.1	2.5
2	7.1	6.4	3.9	3.9	2.1	4.2	1.4	1.4	1.1	2.1	2.5	2.8
3	8.8	6.0	4.2	3.9	2.1	4.2	1.4	1.4	9.2	1.8	2.5	2.8
4	8.5	5.7	4.2	3.9	2.1	4.2	1.4	1.4	2.5	1.8	2.1	2.5
5	7.4	6.0	4.2	3.9	2.1	4.2	1.8	1.4	1.4	1.4	2.1	2.5
6	7.1	6.4	4.2	3.9	2.1	2.8	1.8	1.4	1.4	1.4	2.8	1.8
7	6.4	5.7	4.2	14.1	1.8	2.8	2.1	1.4	1.1	1.4	2.8	1.8
8	9.9	5.7	4.2	10.2	1.8	2.8	2.5	1.4	1.1	1.4	2.8	1.8
9	9.9	6.4	5.3	7.1	2.1	2.8	2.5	1.4	1.4	27.2	2.5	1.8
10	8.5	7.4	6.0	4.6	2.1	2.8	1.4	1.4	1.1	7.8	2.5	1.4
11	8.8	6.7	5.7	3.9	2.1	3.2	1.1	1.4	1.1	28.6	2.5	1.4
12	8.5	4.9	4.9	3.9	2.1	2.8	1.1	1.4	1.1	10.6	2.5	1.8
13	7.1	4.2	4.2	3.5	2.1	2.5	1.1	1.4	1.4	7.8	2.1	2.1
14	7.4	4.2	4.6	3.5	2.1	2.5	1.1	1.4	1.1	5.3	2.1	2.5
15	8.8	4.2	4.6	3.5	1.8	2.5	1.1	1.4	1.1	4.2	2.1	4.2
16	9.2	4.2	4.9	3.2	18.4	2.5	1.1	1.4	1.4	4.2	2.5	3.2
17	9.5	5.3	4.6	2.8	918	2.5	1.1	1.4	1.1	3.9	2.8	2.5
18	9.5	4.2	4.6	3.2	420	2.5	1.1	1.4	1.1	3.9	2.5	2.5
19	7.4	4.2	4.2	4.6	45.9	2.5	1.1	1.4	1.1	3.2	2.1	3.2
20	8.8	4.2	4.2	3.2	20.5	2.5	1.1	1.4	1.1	3.2	2.5	3.5
21	8.8	4.2	4.2	2.8	13.1	2.1	1.1	1.4	1.1	3.2	2.5	3.5
22	9.2	4.2	4.2	2.8	9.2	2.1	1.1	1.4	1.1	2.8	2.5	3.2
23	8.8	4.9	4.2	2.1	6.4	2.1	1.1	1.4	1.1	2.5	2.1	6.0
24	8.5	4.9	4.2	2.5	4.9	1.8	1.1	1.4	1.1	2.8	4.2	4.9
25	7.4	4.2	4.2	2.5	4.2	1.4	339	1.4	1.1	2.8	4.9	3.2
26	6.4	4.2	4.2	2.1	4.2	1.4	22.2	1.4	1.1	3.2	4.9	3.2
27	5.7	3.9	4.2	2.1	3.5	1.4	2.1	1.1	1.1	2.8	3.5	3.2
28	5.3	3.9	4.2	2.1	3.5	1.4	1.4	1.1	84.4	2.8	2.8	3.2
29	5.3	3.9	4.2	2.5	17.7	1.1	1.1	1.1	39.9	2.5	2.5	2.8
30	5.3	4.2	4.2	2.5	5.6	1.1	1.1	1.1	4.2	2.8	2.8	3.5
31	6.4	3.9	3.9	5.3	5.3	1.4	1.4	1.1	1.1	2.1	1.4	192
Sum	242.1	146.7	136.7	119.0	1,531.4	76.9	397.9	41.9	165.6	154.0	81.1	277.3

Month	Current Year 1984						Period 1938-1984				
	Extreme Gage Feet		Extreme Second-Foot		Average Second-Foot	Total Acre-Feet	Acre-Feet				
	High	Low	High	Low			Average	Maximum	Minimum		
Jan.	0.79	0.39	8	25.1	28	4.9	480	379	910	31.5	
Feb.	.52	.36	6	8.8	15	3.5	291	486	5,950	33.3	
Mar.	.46	.36	10	6.4	31	3.5	272	531	2,600	59.2	
Apr.	1.02	.26	7	48.7	123	1.8	236	1,375	16,610	75.4	
May	5.35	.26	17	3,880	15	1.4	49.4	3,039	1,300	9,080	90.0
June	.39	.23	1	4.2	129	1.1	2.5	152	2,346	62,520	43.8
July	3.44	.20	25	1,310	118	1.1	12.7	783	1,384	16,409	26.8
Aug.	.26	.23	1	1.8	127	1.1	1.4	83.5	1,386	19,888	42.2
Sept.	2.95	.16	28	876	19	1.4	328	2,515	49,566	37.3	
Oct.	1.35	.23	9	102	8	1.1	4.9	306	1,673	20,444	22.6
Nov.	.69	.23	24	18.0	1	1.1	2.8	161	430	2,855	21.0
Dec.	3.15	.23	31	1,030	110	1.4	8.8	549	355	1,066	22.0
Yearly	5.35	0.16		3,880		0.4	9.2	6,695.5	14,160	70,026.3	2,065.7
	Meters		Cubic Meters per Second		Thousands of Cubic Meters						
	1.63	0.05		110		0.01	0.26	8,246	17,467	86,384	2,555

** Period 1938-1939

* Discharge measurement made on this day

! And other days

SAN FELIPE SPRINGS AT DEL RIO, TEXAS

DESCRIPTION: Two large and at least two smaller springs rise near the northeast city limits of Del Rio, Texas in or near the channel of San Felipe Creek at latitude 29°22'20" and longitude 100°53'00". The total yield of these springs consists of waters measured in the Val Verde Canal at Del Rio, Texas and in San Felipe Creek at Moore Park, Del Rio, Texas and diversions by the city of Del Rio. Diversions by the San Felipe Irrigation Company through the Val Verde Canal are measured at a gaging station consisting of a paved measuring section and gravity well and water-stage recorder located on the left side of the canal under the U. S. Highway 277 Bridge across San Felipe Creek at latitude 29°21'55" and longitude 100°53'10". The bridge is located about 0.6 creek mile (1.0 km) downstream from the source of the springs and 3.9 creek miles (6.3 km) from the confluence of the creek with the Rio Grande. The gaging station on San Felipe Creek at Moore Park consists of gravity well and water-stage recorder located on the left bank about 300 feet (91 m) downstream from the U.S. Highway 277 Bridge at latitude 29°21'50" and longitude 100°53'10". This stream enters the Rio Grande at river mile 550.5 (902.1 km), 0.5 river mile (0.8 km) downstream from the international highway bridge between Del Rio, Texas and Cd. Acuna, Coahuila. The zeros of the gages for the two stations are, respectively, 942.59 feet (287.39 m) and 930.77 feet (283.79 m) above mean sea level, U. S. C. & G. S. datum.

RECORDS: Records for the Val Verde Canal and San Felipe Creek at Moore Park are based on 52 and 52 discharge measurements, respectively, by wading during the year, and continuous records of gage heights. Computations by shifting control methods. Records for the Del Rio Pumping Plant are furnished by the city of Del Rio Water Department. Records available: Total yield of the springs, February 1961 through 1984.

REMARKS: The flows tabulated below represent only the total yield of the springs. All storm runoff has been eliminated from the tabulations.

Average Flow in Second-Feet (Cubic Meters per Second)

Daily:	Max. 171 (4.84)	July 23, 1976	Min. 29.2 (0.83)	July 29, 1964
Monthly:	Max. 153 (4.33)	December 1975	Min. 34.4 (0.97)	August 1964
Year:	Max. 149 (4.22)	1977	Min. 50.5 (1.43)	1963

Mean Daily Discharge in Second-Feet 1984 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	134	135	130	132	127	122	125	106	116	113	96.6	95.9
2	135	136	131	129	130	124	123	111	114	113	99.4	101
3	132	136	127	132	123	127	125	109	112	113	98.9	98.8
4	131	135	128	131	128	122	121	107	116	112	99.7	99.4
5	132	136	126	130	123	119	121	113	114	111	101	102
6	135	137	130	132	131	125	123	112	113	109	103	99.3
7	134	136	128	131	126	122	123	117	113	108	95.6	99.9
8	137	135	127	136	124	118	122	119	116	108	94.2	95.3
9	136	137	127	135	124	120	123	117	114	107	96.1	97.4
10	137	136	128	132	121	118	121	117	114	106	100	96.5
11	136	136	126	132	121	118	121	120	116	118	97.3	97.5
12	136	134	129	132	121	120	122	121	114	111	100	97.6
13	135	134	130	131	122	118	118	119	115	110	103	95.4
14	137	135	129	133	121	120	120	114	114	111	102	97.8
15	137	133	132	134	125	119	118	107	105	114	100	96.3
16	135	133	133	133	124	119	121	111	108	113	101	100
17	134	130	126	134	130	122	117	121	106	111	108	99.4
18	136	135	127	129	127	122	117	117	112	110	101	98.0
19	138	135	126	131	129	121	118	116	109	110	102	98.4
20	138	137	128	130	125	123	120	117	108	111	103	97.9
21	140	136	128	129	127	123	119	119	109	111	103	97.5
22	141	135	130	126	123	122	115	118	110	103	103	98.0
23	140	132	127	125	125	123	116	121	107	106	104	98.3
24	141	130	126	127	123	126	116	122	109	107	103	98.2
25	139	131	121	127	124	119	125	119	111	106	102	97.6
26	140	130	123	123	123	121	123	118	111	107	103	98.2
27	140	135	128	127	123	122	126	114	111	107	103	97.3
28	136	131	127	127	121	128	125	117	117	109	101	95.2
29	137	128	130	129	125	128	120	115	115	108	101	95.2
30	137	129	129	129	130	127	114	116	111	105	97.3	95.1
31	132	125	125	124	124	113	121	121	101	101	98.7	98.7
Sum	4,223	3,837	3,963	3,913	3,880	3,558	3,731	3,591	3,360	3,392	3,023.6	3,035.1

Current Year 1984

Period Feb. 1961-1984

Month	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet		
	High	Low	Day	High		Minimum					
				Day	Low		Average	Maximum			
Jan.			122	141	4	131	3,385	6,344	9,370	2,274	
Feb.			16	137	29	128	7,710	6,365	8,212	2,119	
Mar.			16	133	25	121	7,870	5,534	9,029	2,365	
Apr.			3	135	23	125	7,761	5,340	8,602	2,291	
May			5	131	110	121	7,693	5,655	9,300	2,842	
June			123	129	9	118	122	5,440	9,049	2,481	
July			27	125	31	113	120	5,670	3,342	2,214	
Aug.			24	122	1	106	116	5,535	9,039	2,114	
Sept.			23	117	15	105	112	6,654	8,934	2,555	
Oct.			11	115	31	101	109	6,723	9,249	2,503	
Nov.			17	108	3	94.2	101	5,997	8,255	2,334	
Dec.			5	102	30	95.1	97.9	5,020	9,431	2,390	
Yearly				141		94.2	110	85,611	78,855	107,892	35,590
	Meters		Cubic Meters per Second				Thousands of Cubic Meters				
			1.99	2.67	3.37	103,933	97,290	133,035	45,121		

2 Mean daily 1 And other days

SAN FELIPE CREEK NEAR DEL RIO, TEXAS

DESCRIPTION: Cableway, bubbler gage, and water-stage recorders (graphic and digital) located on the right bank at latitude 29°19'50", longitude 100°53'20", immediately upstream from the Silos Farm road bridge, 1.1 creek miles (1.3 km) from the confluence with the Rio Grande, and about 2 miles (3.2 km) south-southeast of Del Rio, Texas. This stream enters the Rio Grande at river mile 560.5 (902.1 km), 0.5 river mile (0.8 km) downstream from the international highway bridge between Del Rio, Texas and Cd. Acuna, Coahuila. The zero of the gage is 877.43 feet (267.44 m) above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 53 discharge measurements during the year, 52 by the United States Section and 1 by the Mexican Section of the Commission, and a continuous record of gage heights. Computations by shifting control methods. Records available: September 1931 through 1984.

REMARKS: Municipal diversions at Del Rio and irrigation diversions greatly modify the flow of this spring-fed creek at this station. Backwater from the Rio Grande reaches this station when the Rio Grande near Del Rio reaches a stage of 15 feet (4.5 m), or a flow of about 50,000 second-feet (1,700 m³/sec). On June 28, 1954 combined creek flow and backwater from the Rio Grande reached a stage of 24.51 feet (7.47 m), the highest of record, at this station.

EXTREME FLOWS FROM RECORDS: Momentary: Max. 45,000 second-feet (1,270 m³/sec) on June 14, 1935 with a gage height of 23.20 feet (7.07 m). Min. 0.4 second-foot (0.01 m³/sec) on July 20, 1953.

		Average Flow in Second-Feet (Cubic Meters per Second)		
Daily:	Max. 16,200 (459)	June 14, 1935	Min. 1.5 (0.04)	July 21, 1953
Monthly:	Max. 805 (22.3)	June 1935	Min. 4.6 (0.13)	July 1953
Yearly:	Max. 136 (3.95)	1935	Min. 25.1 (0.71)	1953

Mean Daily Discharge in Second-Feet 1984 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	136	143 *	117	105	101 *	105	85.5	81.4	80.5	83.2	84.1	79.4
2	140	143	115	102	95.8	105	84.0	83.3	78.8	91.1	85.9	79.3
3	140 *	142	112	102 *	92.9	105	84.1	78.7	88.3	92.5	87.9	79.1
4	138	142	111	99.1	89.0	103	84.8	78.5	83.4	95.6	87.7	78.6
5	139	142	111	97.6	85.5	98.1	81.7	80.9	81.5	97.7	89.2	79.0
6	137	140	110 *	97.6	88.2	125	83.4	80.9	79.9	97.5	94.7	77.3
7	135	140 *	105	109	84.6	123	85.0	84.7	86.5	93.4	93.2	77.5
8	141	139	105	113	86.6	102	82.0	86.3	93.5	99.3	81.7	76.8
9	135	135	104	105	94.5	104	80.4	89.8	92.9	105 *	85.0	77.5
10	133 *	135	109	99.3	95.0	107	76.5	93.5	91.8	101	86.2	77.0
11	135	133	113	101	94.6	106	76.3	97.7 *	91.9	537	85.0	78.0
12	136	134	112	95.4	94.4	108 *	77.0	101	90.9	189	95.8	78.6
13	136	131	109 *	94.3	97.3	104	75.4	101	89.6	259	91.2	79.8
14	135	129 *	110	96.4	102	101	77.0	97.5	82.4	331	91.8	80.4
15	137	130	110	99.0	107 *	95.2	75.8	99.9	79.9	240	85.1	95.0
16	137	130	108	97.0	107	93.2	74.4	96.7	83.5	145 *	85.9	93.7
17	138 *	130	111	92.8	117	93.4	73.3	98.1	79.7	93.0	89.7	91.8
18	140	128	110	93.2	119	91.8	72.5	94.5	75.5	89.8	87.0	91.1
19	140	129	109	99.4	114	90.4	73.7	93.6	72.2	102	94.1	91.4
20	142	128	105 *	98.3	113	90.5	75.0	90.9	68.0	100	83.7	91.2
21	142	126	107	94.2	110	91.3	75.2	90.4	71.2	100	81.8	92.4
22	146	125 *	108	97.6	105 *	88.1	75.3	89.8	77.1	92.3	81.0	94.1
23	145	124	106	96.8	105	87.3	74.4	90.1	74.0	94.0 *	91.1	95.7
24	146 *	122	108	99.4	105	89.2	80.9	89.2	73.5	93.2	90.1	95.2
25	143	123	109	99.1	104	85.1	95.6	87.8	74.0	79.8	83.9	95.9
26	143	125	107	100	109	84.1	80.3	89.4	75.7	106	83.2	97.9
27	143	126	105 *	100	111	85.1	91.8	89.4	82.3	105	84.8	98.0
28	142	124 *	107	101	114	82.3	92.7	89.9	93.8	104	83.5	97.5
29	142	121	102	102	128 *	91.7	90.4	91.9	97.5	104	82.1	97.0
30	142	106	102	102	120	88.6	86.0	88.6	80.4	104 *	79.8	99.4
31	143	103	103	112	112	112	84.9	85.0	82.1	82.1	153	153
Sum	4,328	3,320	3,364	2,989.5	3,205.4	2,934.5	2,516.9	2,790.5	2,483.4	4,154.5	2,579.2	2,757.7

Month	Current Year 1984						Period 1932-1934					
	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet			
	High	Low	High		Low				Average	Maximum	Minimum	
			Day	Day	Day	Day						
Jan.	1.86	1.38	8	181	14	127	140	8,584	5,104	8,905	934	
Feb.	1.58	.95	12	154	3	84.8	132	7,577	4,205	8,630	487	
Mar.	1.33	1.03	1	126	29	93.3	109	6,672	4,013	8,354	639	
Apr.	1.82	.98	7	179	12	92.3	99.6	5,928	4,369	10,407	556	
May	1.71	.95	29	171	7	75.7	103	6,350	5,132	17,600	739	
June	1.50	.92	6	144	23	79.3	97.3	5,320	5,327	47,900	301	
July	1.30	.33	25	119	18	67.6	31.2	4,992	4,405	22,377	285	
Aug.	2.03	.83	15	223	5	72.2	90.0	5,535	3,982	7,584	350	
Sept.	1.74	.30	3	173	20	51.3	32.8	4,926	5,257	28,573	372	
Oct.	7.08	.97	11	1,450	31	30.8	134	8,241	5,337	14,229	1,000	
Nov.	1.46	.90	24	135	15	79.1	95.0	5,116	4,501	8,557	526	
Dec.	4.20	.94	31	573	8	72.4	39.3	5,490	4,538	8,642	496	
Yearly	7.08	0.80		1,450		61.3	104	75,241	56,270	98,137	18,201	
	Meters		Cubic Meters per Second				Thousands of Cubic Meters					
	2.15	0.24		41.1		1.74	2.95	92,808	69,403	121,052	22,451	

* Discharge measurement made on this day ! And other days

DIVERSIONS FROM THE RIO GRANDE MAVERICK CANAL AT MILE 13 NEAR QUEMADO, TEXAS

DESCRIPTION: Light-weight cableway for making current meter measurements from the bank, bubbler gage, and water-stage recorders (graphic and digital), located on the left bank of a gunnite-lined section of the canal at latitude 29°03'00", longitude 100°39'40", 0.5 canal mile (0.8 km) downstream from the Tequesquite Creek Siphon, 3.5 canal miles (5.6 km) upstream from the Las Moras Creek Siphon, about 7.5 miles (12.1 km) north-northwest of Quemado, Maverick County, Texas, and 12.8 canal miles (20.6 km) from the canal intake. The canal intake is at river mile 543.6 (874.9 km), 17.4 river miles (28.0 km) downstream from the international highway bridge between Del Rio, Texas and Cd. Acuna, Coahuila. The elevation of the zero of the gage has not been determined.

RECORDS: Based on 25 discharge measurements during the year and a continuous record of gage heights. Computations by shifting control methods. Gage heights at this station are affected by gate operation at Las Moras Siphon. Records available: June 21, 1949 through 1934.

REMARKS: At canal mile 31.3 (51.2 km) a portion of the diverted water returns to the river through the Maverick Power Plant, and the remainder enters the Maverick Canal Extension. In 1984, 11,755 acres (4,757 ha) of land were irrigated between this station and the power plant, and 27,352 acres (11,071 ha) were irrigated from the extension, making a total of 39,111 acres (15,828 ha). A total of 762,173 acre-feet (940,125,000 m³) returned to the Rio Grande at the power plant and through the irrigation system (see pages 50, 52, and 55).

EXTREME FLOWS FROM RECORDS: Momentary: Max. 1,750 second-feet (49.6 m³/sec) on August 30, 1973. Min. no flow several days in June, July, and November 1954; and October 1978.

Average Flow in Second-Foot (Cubic Meters per Second)**

Daily:	Max. 1,730 (49.0)	August 29, 1973	Min. 0	Oct. 2 & 3, 1973
Monthly:	Max. 1,603 (45.4)	September 1981	Min. 295 (8.35)	February 1977
Yearly:	Max. 1,490 (42.2)	1980 & 1981	Min. 632 (17.9)	1972

Mean Daily Discharge in Second-Foot 1984 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1,520	1,600	1,500	1,580	964 *	622	1,310	1,540	1,520	1,170	449	624
2	1,530	1,620	1,500	1,580	1,010	543	1,270	1,540	1,530	1,100 *	385	626
3	1,560 *	1,620	1,510	1,570 *	1,200	591	1,300 *	1,550	1,520	1,070	644	626
4	1,550	1,620	1,510	1,570	1,250	569 *	1,310	1,550	1,530 *	1,100	759	693 *
5	1,560	1,630	1,490 *	1,580	1,360	1,110	1,230	1,540	1,540	1,050	623 *	883
6	1,550	1,610 *	1,480	1,570	1,380	1,450	1,310	1,560 *	1,550	980	682	1,340
7	1,550	1,600	1,520	1,570	1,380	1,460	1,320	1,580	1,530	806	681	1,420
8	1,550	1,610	1,510	1,560	1,350	1,470	1,320	1,560	1,530	851	675	1,460
9	1,560	1,530	1,510	1,550	1,390	1,490	1,320	1,560	1,510	910	664	1,340
10	1,180	1,610	1,510	1,550	1,360	1,490	1,320	1,580	1,490	895	660	1,330
11	790	1,610	1,510	1,530	1,370	1,480	1,240	1,530	1,510	1,110	648	1,330
12	769	1,600	1,500	1,520	1,350	1,500	1,310	1,580	1,520	1,270	646	1,340
13	690	1,590	1,510	1,530	1,360	1,450	1,320	1,580	1,500	969	654	1,360
14	734	1,310	1,490	1,480	1,360	1,440	1,340	1,550	1,500	1,040	548	1,350
15	682	759	1,490	1,460	1,250 *	1,430	1,360	1,550	1,500	998	639	1,390
16	686 *	700	1,520	1,360	1,240	1,320	1,340	1,540	1,490	908 *	629	1,490
17	676	673	1,500	938	1,240	1,380	1,340	1,540	1,440 *	901	618	1,510
18	658	685	1,530	1,010 *	1,250	1,290	1,340	1,560	1,420	883	677	1,530 *
19	639	726	1,530	811	1,250	1,320 *	1,330 *	1,510	1,230	893	682 *	1,540
20	625	724	1,530 *	323	1,260	1,330	1,330	1,490	1,090	918	668	1,540
21	601	760 *	1,540	758	711	1,340	1,340	1,550 *	1,050	871	654	1,540
22	616	921	1,540	790	151	1,340	1,360	1,550	1,040	856	627	1,540
23	652	1,450	1,500	701	775	1,330	1,360	1,540	1,060	852	624	1,540
24	561	1,500	1,540	766	591	1,330	1,440	1,560	1,100	826	540	1,540
25	735	1,400	1,560	571	604	1,320	1,460	1,540	1,060	820	628	1,550
26	734	1,440	1,550	480	493	1,230	1,470	1,540	1,080	839	604	1,560
27	736	1,400	1,550	546	408	1,250	1,480	1,510	1,079	791	605	1,560
28	738	1,480	1,560	844	397	1,310	1,500	1,480	1,100	601	615	1,560
29	736	1,490	1,550	1,020	384	1,300	1,500	1,500	1,230	526	621	1,560
30	866	1,570	981	386	386	1,330	1,520	1,480 *	1,220	384	621	1,570
31	1,510	1,580	431	431	431	1,530	1,530	1,530	1,530	480	621	1,570
Sum	30,644	38,268	47,210	35,699	30,910	37,825	42,270	47,810	40,470	27,689	13,970	41,828

Month	Extreme Gage Feet		Extreme Second-Foot				Average Second-Foot	Total Acre-Foot	Acre-Foot		
	High	Low	High		Low				Average	Maximum	Minimum
			Day		Day						
Jan.	9.57	4.88	9	1,530	24	484	989	60,781	67,994	95,747	20,860
Feb.	9.70	4.60	15	1,530	18	386	1,320	75,903	64,502	88,166	16,403
Mar.	9.91	8.93	31	1,580	23	1,400	1,520	93,640	72,625	96,284	27,679
Apr.	9.99	5.43	1	1,600	27	403	1,190	70,808	73,669	92,978	40,721
May	9.65	.90	14	1,410	22	12.9	997	61,309	78,809	97,573	31,210
June	9.53	5.20	12	1,510	1	477	1,260	75,025	79,641	94,262	40,463
July	9.61	8.03	31	1,540	2	1,190	1,360	33,841	81,174	97,657	35,776
Aug.	9.73	7.81	7	1,590	119	1,230	1,540	94,830	81,490	97,111	36,708
Sept.	9.48	7.13	6	1,560	22	987	1,350	80,271	78,359	95,485	32,963
Oct.	8.50	4.00	11	1,400	30	371	893	54,920	75,605	97,931	22,235
Nov.	6.18	3.30	5	823	3	279	632	37,625	64,862	93,391	22,487
Dec.	9.83	6.16	31	1,580	1	619	1,350	82,955	65,392	97,665	23,516
Yearly	9.99	0.90		1,630		12.9	1,200	371,919	884,240	1,084,048	458,631
	Meters		Cubic Meters per Second				Thousands of Cubic Meters				
	3.04	0.27		46.2		0.37	34.0	1,075,495	1,090,592	1,337,173	565,721

** Period 1958-1984

* Discharge measurement made on this day

! And other days

PINTO CREEK NEAR DEL RIO, TEXAS

DESCRIPTION: Cableway, solid ledge rock and concrete control, bubbler gage, and digital water-stage recorder located on the right bank at latitude 29°08'45", longitude 100°43'05", 1.6 creek miles (2.6 km) from the confluence with the Rio Grande, and about 19 miles (30.6 km) southeast of Del Rio, Texas. This stream enters the Rio Grande at river mile 536.9 (864.1 km), 5.6 river miles (9.1 km) downstream from the Maverick County Water Control and Improvement District No. 1 diversion dam. The zero of the gage is 813.68 feet (248.01 m) above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 14 discharge measurements during the year and a continuous record of gage heights. Records available: September 1955 through 1984 at this station, and November 22, 1928 through August 1955 at a site 3.9 miles (6.3 km) upstream.

REMARKS: Small irrigation diversions modify the flow of this spring-fed creek at this station. When the flow in the Rio Grande at the confluence of this creek exceeds about 30,000 second-feet (2,270 m³/sec), backwater may reach this station. Backwater from the Rio Grande flood of June 1954 reached a gage height of 25.8 feet (8.78 m), or an elevation of 842.50 feet (256.79 m) above mean sea level, at this station.

EXTREME FLOWS FROM RECORDS: Momentary: Max. 186,000 second-feet (5,270 m³/sec) on June 24, 1948 with a gage height of 32.0 feet (9.75 m). Min. frequently no flow.

		Average Flow in Second-Feet (Cubic Meters per Second)			
				Min.	Frequently
Daily:	Max. 28,200 (799)	June 24, 1948		0	Frequently
Monthly:	Max. 953 (27.0)	June 1948		0	Frequently
Yearly:	Max. 105 (2.97)	1932		1.3 (0.04)	1980

Mean Daily Discharge in Second-Feet 1984 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	14.6	13.4	10.4	7.3	2.1	1.4	0.4	1.2	0	0	2.8	3.1
2	16.0	12.0	11.1	7.7	2.8	1.3	.4	.8	0	0	2.7	3.1
3	16.1	12.4	11.4	7.4	2.7	1.1	.4	.6	0	0	2.7	3.0
4	14.3	14.2	10.8	7.0	2.6	1.1	.4	.5	0	0	2.8	3.0
5	13.4	13.7	10.0	7.1	2.6	1.1	.4	.3	0	0	2.7	3.2
6	13.1	13.6	9.5	7.8	2.5	112	.4	.2	0	0	2.6	3.3
7	13.1	13.4	9.8	8.4	2.5	50.8	.4	.2	0	0	2.5	3.1
8	14.4	13.4	9.8	11.3	2.1	10.2	.4	.1	0	0	2.7	3.1
9	18.8	13.7	9.9	8.3	2.2	5.0	.4	.1	0	264	2.7	3.2
10	15.2	13.8	9.8	7.3	2.2	3.0	.3	0	0	67.6	2.7	3.2
11	12.3	13.5	9.9	5.5	2.2	2.4	.3	0	0	271	2.5	3.3
12	11.9	13.1	10.4	6.4	2.2	2.2	.2	0	0	98.6	2.4	3.3
13	12.7	12.9	9.1	6.1	2.1	1.9	.2	0	0	190	2.3	3.7
14	12.9	12.2	8.7	5.8	2.2	1.7	.2	0	0	61.3	2.5	3.4
15	12.6	11.6	8.6	5.3	2.3	1.6	.2	0	0	22.2	2.6	3.3
16	12.7	11.0	8.6	5.1	2.2	1.4	.2	0	0	8.6	2.7	3.4
17	13.5	11.6	8.6	5.0	2.4	1.3	.2	0	0	5.4	2.8	3.4
18	13.7	11.0	8.4	5.0	2.1	1.0	.1	0	0	4.4	3.1	3.4
19	13.3	10.4	7.8	5.2	4.0	1.0	.1	0	0	3.9	3.1	3.3
20	13.3	10.0	7.2	5.0	3.1	.3	.1	0	0	3.4	2.9	3.4
21	13.3	10.1	7.2	4.6	2.7	.8	.1	0	0	3.0	2.9	3.4
22	13.8	10.5	7.2	4.3	2.4	.7	.1	0	0	2.9	3.0	3.2
23	14.4	10.4	7.2	4.1	2.1	.6	.1	0	0	2.8	2.9	3.1
24	14.8	10.9	6.9	3.9	2.0	.5	0	0	0	2.8	3.3	3.1
25	14.4	10.6	6.8	3.7	1.8	.5	.1	0	0	2.8	4.2	3.1
26	13.7	10.3	6.9	3.5	1.6	.5	2.9	0	0	3.7	3.9	3.3
27	13.2	8.9	6.8	3.3	1.4	.5	2.9	0	0	3.5	3.1	3.5
28	12.8	9.1	6.2	3.2	1.5	.5	2.7	0	0	3.3	2.9	3.7
29	13.2	9.9	5.9	2.9	1.5	.5	2.5	0	0	3.0	2.9	3.7
30	13.1		5.9	2.6	1.3	.5	2.0	0	0	3.0	3.1	
31	13.4		6.2		1.4		1.5	0	0	2.9		38.3
Sum	428.0	341.6	263.0	171.1	134.8	207.9	20.6	4.0	0	1,024.2	86.0	140.0

Month	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet		
	High	Low	High	Low	Average	Maximum			Minimum		
	Day	Day	Day	Day	Day	Day	Day	Day			
Jan.	1.39	1.10	8	22.7	11	11.3	13.8	849	553	2,270	0
Feb.	1.18	.99	4	14.3	28	8.4	11.8	578	591	5,750	0
Mar.	1.12	.89	2	11.7	29	5.7	8.5	522	526	2,530	0
Apr.	1.22	.79	8	14.0	30	2.4	5.7	339	1,247	27,100	0
May	2.99	.75	17	363	30	1.2	4.3	267	1,958	79,400	0
June	3.34	.62	6	494	123	.5	5.9	412	3,379	56,700	0
July	.93	.46	26	5.0	24	0	.7	40.9	1,440	30,000	0
Aug.	.72	.36	1	1.4	110	0	1.4	7.9	1,574	48,700	0
Sept.				0	0	0	0	0	2,181	48,965	0
Oct.	4.11	.09	11	388	1	0	33.0	2,931	1,080	8,940	0
Nov.	.91	.79	25	4.2	113	2.3	2.9	171	495	2,590	0
Dec.	1.94	.83	31	80.3	4	2.8	4.5	278	559	2,470	0
Yearly	4.11			898		0	7.7	5,595.3	15,593	75,259.3	948.2
	Meters		Cubic Meters per Second				Thousands of Cubic Meters				
	1.25			25.1		0	0.22	6,902	19,234	94,065	1,170

* Discharge measurement made on this day ! And other days

RIO SAN DIEGO NEAR JIMENEZ, COAHUILA

DESCRIPTION: Cableway, masonry and concrete Cipolletti weir of 777 second-foot (22 m³/sec) capacity, gravity well, and water-stage recorder located on the left bank of Rio San Diego, and gravity well and water-stage recorder on Acedia de Dolores, an irrigation canal that runs along the left bank of the river under the cable, located at latitude 29°04'20", longitude 100°47'35", about 3.5 miles (6 km) west of Jimenez, Coahuila, and 4.1 river miles (7 km) from the confluence with the Rio Grande. Part of the canal flow measured here returns to the river downstream. This stream enters the Rio Grande at river mile 532.2 (856.4 km), 10.4 river miles (16.8 km) downstream from Maverick County Water Control and Improvement District No. 1 diversion dam and 28.9 river miles (46.4 km) downstream from the international highway bridge between Del Rio, Texas and Cd. Acuna, Coahuila. The zero of the gage is 831.73 feet (253.51 m) above mean sea level, U. S. C. & G. S. datum.

RECORDS: For the river, based on the weir discharge table and a continuous record of gage heights; and for the canal, on 13 discharge measurements during the year, 11 by the Mexican Section and 2 by the United States Section of the Commission, and a continuous record of gage heights. The flow tabulated below includes the flow of the canal, and prior to 1954, records do not include this flow. During 1934 the capacity of the weir was exceeded on May 17, July 25, and October 9. Records available: 1922 through 1984. The records from 1922 through September 1932 are considered doubtful.

REMARKS: Reservoirs and irrigation diversions upstream from these stations modify the flow of this spring-fed stream. On December 24, 1955, the zero of the gage was raised 2.62 feet (0.80 m); in November 1961 an additional 0.20 foot (0.06 m), and the capacity of the weir was increased from 706 (20 m³/sec) to 777 second-foot (22 m³/sec).

EXTREME FLOWS FROM RECORDS** Momentary: Max. 81,930 second-foot (2,320 m³/sec) on June 17, 1961 with a gage height of 20.70 feet (6.31 m). Min. no flow occurred on several occasions during April, May, and June 1939, May and August 1952, and July and August 1953.

Average Flow in Second-Foot (Cubic Meters per Second)**

Daily:	Max. 36,703 (1,040)	July 18, 1975	Min. 0	Occasionally
Monthly:	Max. 2,380 (67.5)	Oct. 1932	Min. 8.0 (0.23)	July 1956
Yearly:	Max. 622 (17.6)	1975	Min. 24.0 (0.68)	1956

Mean Daily Discharge in Second-Foot 1984 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	142	98.5	51.9	42.7	30.4	263	167	93.6	31.1	61.4	125	90.1
2	150	95.7	46.6	39.9	31.1	253	167	86.2	35.3	73.5	110	88.6
3	153	94.4	46.6	37.8	30.4	253	167	74.2	35.7	92.2	109	90.8
4	145	74.2	44.5	37.8	29.7	253	158	72.0	35.7	112	102	79.5
5	137	73.1	41.7	37.8	29.7	243	195	89.7	35.7	115	95.0	68.2
6	129	71.7	39.6	37.8	29.7	214	261	71.0	36.4	115	87.7	57.9
7	129	87.2	37.8	33.9	28.3	204	271	57.6	32.5	115	94.6	57.2
8	133	120	36.0	34.3	28.3	196	271	49.4	31.4	125	105	49.8
9	137	129	38.1	33.2	28.3	204	268	41.0	27.5	995	104	45.3
10	131	113	37.1	31.1	28.3	213	251	41.0	30.0	195	107	39.6
11	129	127	38.1	31.1	26.5	213	250	40.6	29.7	1,550	104	33.1
12	125	129	37.4	30.7	25.4	213	250	35.7	29.7	275	102	39.9
13	129	129	37.4	30.7	25.1	213	195	35.3	27.9	537	99.2	39.6
14	129	131	38.5	31.4	25.1	213	165	35.3	27.9	671	96.8	39.5
15	129	131	38.1	31.8	25.8	195	154	35.3	28.3	272	93.9	38.5
16	127	129	38.1	32.8	36.0	177	140	35.3	27.9	255	91.5	38.8
17	126	129	37.4	33.2	1,090 *	195	136	35.7	27.9	234	91.5	39.2
18	121	129	36.4	33.9	713	213	131	35.7	27.2	234	89.0	39.2
19	111	131	28.6	34.6	703	213	126	35.7	26.8	227	89.0	38.5
20	106	131	31.1	34.3	546	222	142	36.0	26.1	221	91.5	38.8
21	103	117	33.2	33.9	597	194 *	155	36.4	25.4	217	91.5	27.2
22	99.9	107	36.7	33.5	533	176	155	36.4	24.7	213	91.5	27.5
23	99.9	106 *	37.1	32.3	491	176	155	36.7	24.0	208	91.5	27.5
24	84.4	101	37.4	32.5	441	176	155	36.7	23.7	204	97.8	32.5
25	78.0	91.8	39.6	32.1	403	176	333	36.0	23.0	200 *	111	32.5
26	71.7	68.5	39.6	31.8	352	167	193	35.7	22.6	200	109	36.7
27	70.6	55.8	39.5	31.1	318	167	169	31.4	21.9	187	99.2	37.1
28	70.6	56.9	37.4	31.1	305	158	143	31.1	27.9	159	97.8	36.7
29	71.7	55.4	36.7	30.7	309	166	143	31.1	36.4	159	101	29.7
30	84.4		36.4	30.4	294	157	127	31.1	45.6	144	92.9	37.4
31	97.1		39.9		279		112	31.1		138		115
Sum	3,550.3	3,002.2	1,194.6	1,010.7	7,932.1	6,086	5,705	1,410.0	885.9	8,516.1	2,970.9	1,498.0

Month	Extreme Gage Feet		Extreme Second-Foot			Average Second-Foot	Total Acre-Foot	Period 1933-1934 Acre-Foot				
	High	Low	High	Day	Low			Average	Maximum	Minimum		
	Day											
Jan.	0.43	0.23	8	167	28	55.7	114	7,041	8,053	36,430	1,860	
Feb.	.43	.16	9	157	128	42.7	103	5,951	5,324	23,760	1,060	
Mar.	.16	.10	1	57.9	18	27.2	33.5	2,370	5,619	27,040	1,340	
Apr.	.13	.10	1	42.7	30	30.4	33.5	2,005	6,740	40,270	1,110	
May	3.51	.07	17	4,030	113	22.6	256	15,737	11,849	120,200	861	
June	.59	.43	1	253	28	153	203	12,072	11,133	108,300	543	
July	1.38	.30	25	918	31	96.4	184	11,311	13,299	136,149	490	
Aug.	.30	.10	5	103	127	31.1	45.6	2,796	11,232	91,243	738	
Sept.	.20	.07	30	61.1	27	21.9	29.7	1,757	15,315	94,667	1,183	
Oct.	4.43	.20	3	5,830	1	61.1	275	16,905	18,193	71,830	1,693	
Nov.	.39	.26	1	141	18	95.1	93.9	5,394	13,145	54,060	903	
Dec.	.59	.07	31	242	21	23.3	48.4	2,971	9,207	45,320	1,130	
Yearly	4.43	0.07		5,830		21.9	120	86,910	131,111	451,932	17,430	
	Meters		Cubic Meters per Second			Thousands of Cubic Meters						
	1.35	0.02		165		0.62	3.39	107,078	161,723	557,477	21,508	

** Period October 1932-1934 * Discharge measurement made on this day ! And other days

RIO GRANDE NEAR JIMENEZ, COAHUILA AND QUEMADO, TEXAS

DESCRIPTION: Cableway, bubbler gage, control weir of 1,270 second-foot (36 m³/sec) capacity, gravity well, and water-stage recorder located on the right bank at latitude 29°03'00", longitude 100°39'50", and river mile 530.3 (853.5 km); 1.5 miles (2.4 km) south-southeast of Jimenez, Coahuila, 1.8 river miles (3.0 km) downstream from Rio San Diego, about 7.5 miles (12.1 km) north-northwest of Quemado, Maverick County, Texas, 12.3 river miles (19.8 km) downstream from the Maverick County Water Control and Improvement District No. 1 diversion dam, and 30.7 river miles (49.4 km) downstream from the international highway bridge between Del Rio, Texas and Cd. Acuna, Coahuila. The zero of the gage is 769.00 feet (234.39 m) above mean sea level, U.S.C. & G.S. datum.

RECORDS: Based on 27 discharge measurements during the year, 15 by the Mexican Section and 12 by the United States Section of the Commission, and a continuous record of gage heights. Computations by shifting control methods prior to completion of the weir and for flows exceeding the capacity of the weir rating curve defined by computations for flows within the capacity of the weir were based on a stable control weir rating curve defined by meter measurements. Records available: 1965 through 1984. Records, excluding some high flow periods, are also available from 1956 through May 1965 for a station 8.1 river miles (14 km) upstream. Records prior to 1976 were published under the title "Rio Grande below Maverick Dam near Quemado, Texas."

REMARKS: This station was placed in operation January 1, 1965 and replaces the station "Rio Grande below Maverick Dam near Del Rio, Texas," which stopped operating June 1, 1965. Irrigation diversions 13.3 river miles (21.5 km) upstream largely control the flow at this station. The weir was placed in operation June 1, 1967, and the zero of the gage was set 3.28 feet (1 m) higher.

EXTREME FLOWS FROM RECORDS: Momentary: Max. 79,800 second-feet (2,260 m³/sec) on July 18, 1975 with a gage height of 25.20 feet (7.63 m). Min. 2.8 second-feet (0.08 m³/sec) several days in April 1983 with a gage height of 0.20 foot (0.06 m).

		Average Flow in Second-Feet (Cubic Meters per Second)			
Daily:	Max. 67,100 (1,900)	July 18, 1975	Min. 2.8 (0.03)	April 25 and 26, 1983	
Monthly:	Max. 21,300 (502)	Sept. 1974	Min. 28.3 (0.80)	June 1969	
Yearly:	Max. 4,380 (124)	1974	Min. 286 (8.11)	1968	

Mean Daily Discharge in Second-Feet 1984 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	396	576	537	2,560	202	326	1,340	2,190	1,710	406	463	152
2	438	558	526	2,590	207	324	1,390	2,150	1,740	410	413	159
3	509	547	533	3,530	5,290	396	1,850	2,160	1,740	420	248	171
4	480	547	547	3,490	11,100	410	2,560	2,150	1,830	459	155	140
5	456	547	558	3,330	10,900	773	2,520	2,150	1,800	448	174	94.6
6	466	583	579	6,070	10,800	823	2,520	2,120	1,880	459	190	182
7	473	507	533	6,250	10,300	805	2,550	2,130	1,850	487	174	213
8	465	607	537	6,220	5,140	585	2,490	2,250	1,790	420	159	195
9	554	753	525	6,180	5,790	614	2,540	2,120	1,480	2,530	159	115
10	350	607	530	7,800	6,900	611	2,510	2,120	1,500	553	142	147
11	271	625	569	7,980	7,560	632	2,610	2,100	1,490	11,500	150	110
12	271	657	607	7,910	7,590	600	2,490	2,100	1,420	957	174	105
13	267	646	558	4,940	7,520	650	2,440	2,100	1,420	1,510	171	97.5
14	278	491	583	830	7,490	664	2,360	1,070	1,430	1,550	169	61.8
15	274	331	717	452	7,700	653	2,340	1,240	1,450	657	192	77.0
16	267	297	1,130	463	7,560	785	2,360	1,220	946	569	183	308
17	264	287	1,200	371	7,560	735	2,350	1,410	950	530	195	293
18	260	295	1,180	295	6,990	805	2,390	1,420	735	530	192	267
19	250	290	1,190	250	5,790	780	2,390	1,350	399	512	174	267
20	255	290	1,170	190	5,620	848	2,430	1,170	431	540	145	262
21	260	267	1,120	93.2	6,220	837	2,440	1,440	452	537	154	266
22	264	271	1,080	129	4,200	840	2,430	1,560	480	491	159	265
23	267	579	1,410	119	964	844	2,420	2,410	480	477	152	261
24	243	579	1,190	209	742	830	2,280	2,440	453	494	181	278
25	164	727	1,320	219	798	830	2,920	2,460	473	505	237	265
26	124	646	1,350	219	657	975	2,890	2,420	452	512	226	263
27	121	643	1,310	212	586	1,310	2,290	2,490	459	544	200	263
28	121	551	1,240	214	622	1,360	2,260	2,590	420	448	162	255
29	127	530	1,260	212	625	1,370	2,250	2,430	536	399	159	240
30	150		2,610	195	586	1,340	2,220	2,510	413	480	165	275
31	459		2,560		505		2,190	2,500		491		1,140
Sum		14,944		73,514.2		23,415		61,930		31,025		7,187.9
	9,545		30,760		155,584		72,990		32,569		5,818	

Month	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Period 1968-1984 Acre-Feet		
	High	Low	High	Low	High	Maximum			Minimum		
	Day	Day	Day	Day	Day	Day	Day				
Jan.	1.28	0.39	31	816	127	121	308	18,929	42,064	144,286	5,236
Feb.	1.23	.55	9	816	22	245	516	29,646	74,169	401,339	5,788
Mar.	2.56	.99	37	3,230	1	477	992	61,038	77,472	283,077	5,874
Apr.	4.27	.30	12	8,120	21	42.4	2,450	145,848	59,670	293,637	5,030
May	4.95	.49	4	11,200	3	195	5,010	308,542	141,822	422,934	6,574
June	1.77	.62	29	1,440	2	290	780	46,425	102,575	291,767	1,671
July	3.92	1.64	25	4,560	2	1,240	2,350	144,742	101,394	311,781	2,322
Aug.	2.92	.62	30	3,390	20	290	2,000	122,853	125,765	719,859	11,855
Sept.	2.66	.75	3	3,470	28	385	1,090	54,306	170,655	1,264,103	13,678
Oct.	12.14	.63	11	31,700	8	338	1,000	51,584	140,850	831,293	11,210
Nov.	1.95	.39	2	607	10	129	194	11,540	58,583	499,143	8,863
Dec.	2.20	.26	31	2,300	15	30.7	232	14,258	33,921	181,109	7,455
Yearly	12.14	0.26		31,700		30.7	1,400	1,030,211	1,144,550	3,169,835	207,995
Yearly	Meters		Cubic Meters per Second				Thousands of Cubic Meters				
	3.70	0.03		899		0.87	40.2	1,270,751	1,411,790	3,939,913	256,561

* Discharge measurement made on this day

! And other days

RIO SAN RODRIGO AT EL MORAL, COAHUILA

DESCRIPTION: Gravity well and water-stage recorder located on the left bank of El Moral, Coahuila, latitude 28°53'20", longitude 100°37'55", 1.0 river mile (1.6 km) from the confluence with the Rio Grande, and about 15.5 miles (25 km) northwest of Piedras Negras, Coahuila. This stream enters the Rio Grande at river mile 518.2 (834.0 km), 24.4 river miles (39.3 km) downstream from the Maverick County Water Control and Improvement District No. 1 diversion dam and 21.9 river miles (35.2 km) upstream from the international highway bridge between Eagle Pass, Texas and Piedras Negras, Coahuila. The zero of the gage is 750.95 feet (228.89 m) above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 28 discharge measurements during the year, 26 by the Mexican Section and 2 by the United States Section of the Commission, and a continuous record of gage heights. Computations by shifting control methods. Records available: 1962 through 1984.

REMARKS: Prior to 1976 this station was published under the heading "Rio San Rodrigo near Mouth at El Moral, Coahuila." The flow of this spring-fed stream is modified by diversions above this station. The concrete control weir, placed in operation on November 25, 1969, was destroyed by the flood of July 12, 1976, and the station was relocated on October 15, 1976.

EXTREME FLOWS FROM RECORDS**: Momentary: Max. 140,000 second-feet (3,970 m³/sec) on July 18, 1975 with a gage height of 18.44 feet (5.62 m). Min. frequently no flow.

Average Flow in Second-Feet (Cubic Meters per Second)

Daily:	Max.	44,500 (1,260)	July 18, 1975	Min.	0	Frequently
Monthly:	Max.	7,380 (209)	July 1976	Min.	0	Frequently
Yearly:	Max.	837 (23.7)	1976	Min.	5.3 (0.15)	1963

Mean Daily Discharge in Second-Feet 1984 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	35.3	27.9	15.5	17.3	13.4	9.9	6.7	1.8	1.4	0	15.5	8.5
2	41.3	29.3	15.5	18.0	12.4	8.5	6.7	1.4	1.4	0	13.4	8.5
3	45.9	29.3	15.5	18.4	11.7	8.5	6.7	1.4	1.4	0	13.4	8.5
4	42.0	27.9	15.5	18.4	10.2	8.5	6.7	1.4	1.4	0	13.1	8.5
5	38.1	26.1	15.5	18.7	9.9	8.5	6.0	1.4	1.4	0	11.3	8.5
6	35.3	24.7	15.5	19.1	9.9	8.5	5.3	1.4	1.1	0	11.3	7.4
7	31.8	24.7	15.5	19.1	9.2	7.8	5.3	1.4	1.1	0	10.9	7.4
8	31.8	24.7	15.5	19.8	8.5	7.8	5.3	1.4	1.1	0	10.9	7.4
9	45.9	24.7	15.5	20.5	7.8	7.8	5.3	1.4	1.1	424	10.9	7.4
10	42.7	24.4	15.5	21.5	6.7	7.8	5.3	1.4	1.4	37.1	10.2	7.8
11	35.3	24.0	14.8	21.9	5.0	7.8	5.3	1.4	1.4	5,970	9.9	7.8
12	32.5	23.3	15.5	22.2	4.9	6.7	5.3	1.4	1.4	337	9.9	7.8
13	29.7	22.6	16.6	22.6	4.6	6.7	5.3	1.4	1.4	319	9.9	7.8
14	29.7	22.2	16.2	21.5	4.2	6.7	5.3	1.4	1.4	855	9.5	7.8
15	28.6	22.2	16.2	21.5	4.2	6.7	4.9	1.4	1.4	226	9.5	7.8
16	27.5	21.5	15.5	21.5	4.2	6.7	4.2	1.4	1.4	97.5	9.5	7.8
17	26.8	20.1	15.5	21.2	4.6	5.0	4.2	1.4	1.4	63.9	9.5	7.8
18	26.8	20.5	15.5	21.2	3.9	5.0	4.2	1.4	1.4	48.7	10.6	7.8
19	24.7	20.1	16.2	21.2	7.10	5.0	4.2	1.4	1.4	39.6	9.5	7.8
20	24.7	19.4	18.4	20.1	639	6.0	3.9	1.4	1.4	33.2	9.5	7.8
21	23.3	18.4	18.0	19.8	371	6.0	3.9	1.4	0	28.3	9.5	7.8
22	22.2	18.0	18.0	19.1	218	6.7	3.9	1.4	0	23.7	9.5	7.8
23	22.2	17.7	18.0	19.1	151	6.7	3.5	1.4	0	21.2	9.5	7.8
24	21.9	17.0	18.0	19.1	109	6.7	3.5	1.4	0	19.8	10.9	7.8
25	20.5	16.2	18.0	18.0	74.2	6.0	3.5	1.4	0	19.1	10.2	7.8
26	18.7	17.7	18.0	18.0	47.7	6.0	3.5	1.4	0	19.1	10.2	7.8
27	17.3	16.6	18.4	17.0	29.3	5.0	3.5	1.4	0	21.2	8.5	7.8
28	17.3	14.8	19.1	16.2	18.4	6.0	3.5	1.4	0	20.5	8.5	8.1
29	17.3	14.8	18.0	16.2	14.1	7.1	3.5	1.4	0	18.4	8.5	9.5
30	16.6	16.6	15.9	11.3	7.8	2.8	1.4	1.4	0	17.0	8.5	18.4
31	16.2	17.0	17.0	9.9	9.9	2.5	1.4	1.4	0	15.5	10.2	10.1
Sum	389.9	530.8	512.5	584.1	2,539.2	213.9	143.7	43.8	17.8	8,674.8	312.0	349.5

Current Year 1984

Period 1962-1984

Month	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet		
	High	Low	Day	High	Day	Low			Average	Maximum	Minimum
							High	Low			
Jan.	2.53	2.33	9	54.4	130	15.9	28.6	1,766	3,331	13,281	0
Feb.	2.33	2.13	2	30.7	128	14.8	21.9	1,252	2,296	9,932	0
Mar.	2.23	2.10	29	20.1	11	13.8	16.6	1,016	1,858	7,818	0
Apr.	2.26	2.13	13	22.6	30	15.5	19.4	1,159	3,961	29,072	81.1
May	4.43	1.94	19	992	16	3.5	81.9	5,035	4,028	29,277	17.0
June	2.10	2.03	1	9.9	117	6.0	7.1	424	2,335	12,764	0
July	2.03	1.90	1	6.7	31	2.5	4.6	286	32,061	454,643	0
Aug.	.92	.83	1	1.8	12	1.4	1.4	87.6	11,540	89,017	0
Sept.	.92	.07	1	1.4	120	0	.7	34.9	14,083	48,065	0
Oct.	15.12	.07	11	13,709	1	1	280	17,200	12,359	53,088	0
Nov.	1.28	1.15	24	16.2	27	8.1	10.6	620	8,671	84,015	0
Dec.	2.49	1.12	31	328	16	7.4	11.3	692	4,654	19,970	0
Yearly	15.12	0.07		13,700		0	40.6	29,572	101,187	606,526	3,850.7
	Meters		Cubic Meters per Second				Thousands of Cubic Meters				
	4.61	0.02		389		0	1.15	36,477.2	124,816	748,140	4,750

** Period 1961-1984

* Discharge measurement made on this day

! And other days

RETURN FLOW TO THE RIO GRANDE FROM THE MAVERICK CANAL AT MAVERICK POWER PLANT NEAR EAGLE PASS, TEXAS

DESCRIPTION: A part of the water diverted from the river into the Maverick Canal is returned to the Rio Grande through the hydroelectric power plant located on the left bank of the Rio Grande at latitude 28°49'50", longitude 100°33'10", about 9 miles (14.5 km) north-northwest of Eagle Pass, Texas, and about 32.2 canal miles (51.8 km) downstream from the point of diversion. The return enters the Rio Grande at river mile 506.8 (815.6 km)

RECORDS: Based on records furnished by the Maverick County Water Control and Improvement District No. 1, showing hourly discharge in cubic feet per second based on hourly manometer readings, through each turbine at the Central Power and Light Company hydroelectric power plant. The mean daily discharges computed from the manometer readings have been multiplied by a factor to make them agree with periodic current meter measurements of flows made under stable flow conditions by hydrographers of the Commission. There were 53 discharge measurements made during the year. Records available: 1949 through 1984.

REMARKS: This power plant began operating April 16, 1932 with hydroelectric power generating facilities for 12,000 kw. Because the September 1932 flood washed out the upper end of the Maverick Canal, this plant did not operate from September 2, 1932 until March 17, 1937. Since then it has operated continuously except for 44 days in 1953 when shortage of water prevented operation, and from June 30 through July 19 during flood of 1954, and while the canal was being repaired. The plant's operation is now governed by the amount of water released from Amistad Reservoir, which began operations on May 31, 1968.

Average Flow in Second-Feet (Cubic Meters per Second)**				
Daily:	Max. 1,580 (44.7)	February 28, 1982	Min. 0	Occasionally
Monthly:	Max. 1,480 (41.9)	December 1980	Min. 42.4 (1.20)	December 1971
Yearly:	Max. 1,230 (34.8)	1981	Min. 232 (6.57)	1972

Mean Daily Discharge in Second-Feet 1984 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1,350	1,360	1,220	1,240	612	289	913	1,260	1,460	1,080	380	489
2	1,360	1,390	1,220	1,240	568 *	318	889 *	1,280 *	1,470	1,040 *	310	475
3	1,450	1,400	1,230	1,240 *	629	270	915	1,270	1,440	998	429	455
4	1,480 *	1,400	1,260	1,200	832	253 *	944	1,290	1,450	1,010	685	497 *
5	1,430	1,410	1,230	1,220	960	477	928	1,300	1,390 *	1,030	530	599
6	1,420	1,380 *	1,220 *	1,230	1,080	1,050	945	1,260	1,380	937	583	1,040
7	1,400	1,300	1,270	1,250	1,070	1,140	997	1,250 *	1,370	783	553 *	1,300
8	1,410	1,330	1,260	1,280	1,010	1,120	1,050	1,250	1,360	748	501	1,370
9	1,410 *	1,220	1,220	1,290	1,050 *	1,180	1,000	1,210	1,360	804 *	507	1,270
10	1,200	1,310	1,210	1,270	1,080	1,240	1,000	1,230	1,340	815	513	1,210 *
11	658	1,330	1,230	1,270 *	1,050	1,200 *	926 *	1,240	1,390 *	892	513	1,210
12	690	1,350	1,240	1,300	1,050	1,230	923 *	1,260	1,450	1,250	491	1,210
13	612	1,310	1,260	1,280	1,040	1,220	982	1,250	1,440	894	487 *	1,230
14	569	1,190	1,210	1,240	1,080 *	1,180	1,020	1,200	1,440	895	501	1,250
15	592	595	1,170 *	1,230	912	1,170	1,090	1,170 *	1,450	946	499	1,240
16	587	428	1,190	993 *	912	1,120	1,070	1,190	1,450	834 *	518	1,380
17	573	438	1,170	694	1,040	1,210	1,030	1,170	1,410	801	504	1,430 *
18	565 *	413	1,170	647	1,080	1,010 *	1,060 *	1,200	1,370 *	791	532	1,450
19	543	436	1,170 *	616	1,030	922	1,030	1,230	1,260	803	523	1,460
20	527	476	1,180	462	1,060	962	1,020	1,030 *	1,040	801	513 *	1,450
21	495	476	1,170	411	932 *	972	1,030	1,140	1,000	808	514	1,460
22	507	467	1,170	503	178	924	1,060	1,160	961	775 *	490	1,460
23	498 *	975 *	1,140	357 *	387	930	1,070 *	1,170	971	765	495	1,460
24	534	1,190	1,180	151	609	928	1,100	1,190	996	743	511	1,450
25	543	1,130	1,210	110	568	909 *	1,150	1,110	987	743	537	1,470
26	563	1,160	1,210 *	280	425	830	1,180	1,060	986	754	498	1,470
27	542	1,100 *	1,180	241	291	721	1,180	1,070 *	970 *	712	501 *	1,480
28	509	1,180	1,110	458	295	808	1,200	1,360	1,000	649	532	1,480 *
29	544	1,200	1,140	641	328 *	805	1,240	1,490	1,050	490 *	524	1,470
30	538		1,150	559	352	875	1,230	1,490 *	1,110	312	532	1,480
31	1,100		1,150		290		1,230	1,490		312		1,500
Sum	26,119	30,344	37,140	26,003	23,800	27,263	32,402	38,270	37,751	25,215	15,206	38,195

Month	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet		
	High	Low	Day	High	Day	Low	Feet	Feet	Average	Maximum	Minimum
				Day					Day	Day	Day
Jan.			4	1,480	21	495	843	51,807	51,499	86,856	4,952
Feb.			5	1,410	18	413	1,050	60,186	48,444	78,744	4,871
Mar.			7	1,270	28	1,110	1,200	73,666	48,042	79,299	5,713
Apr.			12	1,300	25	110	867	51,576	46,928	78,704	4,301
May			6	1,080	22	178	758	47,207	56,022	84,020	13,888
June			10	1,240	4	253	909	54,075	51,745	78,545	6,618
July			29	1,240	2	899	1,050	64,268	50,798	76,637	5,537
Aug.			19	1,490	20	1,030	1,230	75,907	53,764	75,907	18,457
Sept.			2	1,470	22	961	1,260	74,878	59,444	80,112	13,741
Oct.			12	1,250	130	312	813	50,013	58,772	85,547	11,147
Nov.			4	685	2	310	507	30,161	48,617	80,073	3,203
Dec.			31	1,500	3	455	1,230	75,759	49,709	91,260	2,608
Yearly				1,500		110	977	709,503	623,790	889,049	168,354
	Meters		Cubic Meters per Second				Thousands of Cubic Meters				
				42.5		3.12	27.7	875,158	769,432	1,096,641	207,665

** Period 1969-1984 * Discharge measurement made on this day † Mean daily ‡ And other days

MAVERICK CANAL EXTENSION BELOW THE POWER PLANT NEAR EAGLE PASS, TEXAS

DESCRIPTION: Gage well and digital water-stage recorder located on the downstream side of a wooden pile bridge at latitude 28°49'50", longitude 100°32'49", about 1 mile (1.6 km) downstream from the heading of this canal extension, about 9 miles (14.5 km) north-northwest of Eagle Pass, Texas, and about 32.8 canal miles (52.8 km) downstream from the point of diversion from the Rio Grande, which is located at river mile 543.6 (874.9 km). The elevation of the zero of the gage has not been determined.

RECORDS: Based on 25 discharge measurements during the year and a continuous record of gage heights. Computations by shifting control methods. Records available: 1939 through 1994.

REMARKS: The main Maverick Canal divides into two branches at a point about 9 miles (14.5 km) north-northwest of Eagle Pass, Texas, and about 31.3 canal miles (51.2 km) downstream from the point at which water from the Rio Grande is diverted. One branch leads to the Maverick Power Plant and back to the Rio Grande, while the other branch forms this Maverick Canal Extension, which is used to transmit irrigation water. Irrigation from this canal extension began in June 1938. In 1984, 27,356 acres (11,071 ha) of land north and south of Eagle Pass were irrigated. A total of 34,726 acre-feet (42,834,000 m³) of water from this canal extension returned to the river through the irrigation system which extends approximately 67 canal miles (108 km) downstream.

EXTREME FLOWS FROM RECORDS: Momentary: Max. 530 second-feet (16.4 m³) on July 25, 1954. Min. occasionally no flow.

Average Flow in Second-Feet (Cubic Meters per Second)**

Daily:	Max. 552 (15.6)	June 5 & 7, 1958	Min. 0	Occasionally
Monthly:	Max. 507 (14.9)	June 1963	Min. 21.9 (0.62)	October 1984
Yearly:	Max. 294 (8.33)	1972	Min. 111 (3.13)	1981

Mean Daily Discharge in Second-Feet 1984 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	148	72.5	144	199	295	168	262	210	0	25.0	22.3	102
2	149	72.3	145	193	322 *	190	254 *	216	0	25.0	22.6	106
3	87.3	72.0	147	164 *	326	186	251	217	0	25.0	22.8	110
4	53.2	71.8	148	173	300	191 *	245	218	0	25.0	23.1	110 *
5	97.7	72.2	143	171	286	194	233	217	26.0	25.0	23.1	83.3
6	130	83.7	145 *	195	280	195	227	219	46.1	25.0	25.0	40.9
7	130	102	128	170	270	197	225	219 *	46.1	25.0	57.6	41.2
8	130	126	117	179	260	205	224	223	46.1	25.0	95.7	40.8
9	127	124	156	185	255	204	225	238	46.1	25.0	90.4	40.5
10	125	124	150	182	249	193	227	247	46.1	24.1	81.4	40.7
11	125	124	145	170	250	195	226	248	35.0	23.1	82.4	41.0
12	123	123	124	155	243	190	238	251	26.0	22.2	33.3	41.1
13	112	141	122	165	235	190	243	251	26.0	21.3	78.0	41.4
14	90.0	154	131	163	228 *	196	237	251	26.0	20.4	68.6	41.4
15	78.7	154	141	162	225	195	231	251	26.0	19.4	63.8	41.1
16	82.4	174	156	159 *	205	195	230	254	26.0	18.5	70.1	41.6
17	95.5	176	156	161	115	195	223	255	26.0	18.7	75.8	41.9
18	77.4	175	180	173	97.0	199 *	216 *	258	26.0	19.0	38.3	42.3
19	77.6	178	169 *	158	109	201	215	260	25.9	19.2	105	42.7
20	76.9	159	150	155	125	205	215	258 *	25.9	19.5	106	43.0
21	76.9	152	163	155	108	209	215	260	25.8	19.7	107	43.1
22	76.7	186	157	167	42.9	214	221	261	25.7	19.9	108	43.3
23	75.7	134 *	157	167	14.6	228	213	265	25.6	20.2	110	43.8
24	76.9	157	171	167	23.9	240	213	274	25.6	20.4	103	44.0
25	87.2	154	171	179	64.1	254	217	273	25.5	20.7	106	44.1
26	93.7	136	166	181	190	258	225	273	25.4	20.9	115	44.3
27	95.3	137	131	182	211	259	224	267	25.4	21.1	111 *	44.3
28	106	141	234	219	208	255	219	60.4	25.3	21.4	102	44.4
29	103	142	229	218	165	272	217	14.3	25.2	21.6	102	44.5
30	108	210	228	138	273	215	215	0	25.1	21.9	102	44.6
31	90.6	200		136		211	211	0		22.1	103	44.7
Sum		3,878.5		5,295		6,363		6,708.7		630.3		1,618.0
	3,092.7		4,936		5,958.5		7,037		780.9		2,351.5	

Month	Average Rainfall Inches***	Current Year 1984				Average Second- Feet	Total Acre-Feet	Period 1953-1984					
		Extreme Second-Feet						Acre-Feet					
		High	Low		Day			Average	Maximum	Minimum			
	1939-1984	1984	Day	Day		Day	Acre-Feet				Average	Maximum	Minimum
Jan.	0.76	1.50	2	159	3	39.1	99.8	6,134	10,653	18,236	4,326		
Feb.	.87	.03	23	225	4	70.1	134	7,693	9,774	18,005	4,911		
Mar.	.64	.32	29	239	8	105	159	9,790	15,456	23,397	7,387		
Apr.	1.80	0	28	315	24	134	176	10,502	17,134	25,900	3,654		
May	3.04	1.83	2	341	23	7.1	193	11,338	14,540	28,191	2,279		
June	2.16	.63	30	278	1	134	212	12,621	17,332	30,173	2,066		
July	1.43	.42	1	271	31	209	227	13,958	19,094	28,854	8,825		
Aug.	2.06	.13	24	281	130	0	216	13,307	17,216	24,335	10,936		
Sept.	2.85	1.39	5	76.7	1	0	26.0	1,549	11,142	17,691	1,549		
Oct.	2.14	4.21	1	25.0	16	18.5	21.9	1,349	10,311	16,504	1,349		
Nov.	.77	.52	126	115	1	22.3	78.4	4,564	10,360	18,794	4,564		
Dec.	.68	2.20	12	110	9	40.0	52.2	3,209	9,829	16,324	3,134		
		19.21	13.28		341		0	133		96,614	162,841	213,138	80,123
Yearly													
	Millimeters	Cubic Meters per Second				Thousands of Cubic Meters							
	488	337		9.65		0	3.77	119,171	200,951	262,905	95,832		

** Period 1953-1984 * Discharge measurement made on this day † And other days
 *** On the United States side from Maverick Power Plant to Cuervo Creek

**RETURN FLOW TO THE RIO GRANDE
FROM THE MAVERICK IRRIGATION DISTRICT
ABOVE EAGLE PASS, TEXAS**

DESCRIPTION: Part of the water diverted from the Rio Grande into the Maverick Canal is returned to the river through various drains and spillways of the irrigation system located between Maverick Diversion Dam and Eagle Pass, Texas. These return flows are measured at gaging stations consisting of sharp-crested Cipolletti weirs or control structures equipped with continuous water-stage recorders located at Lateral 2 Spill, Canon Grande, Quemado Creek, Lateral 15 Spill, Houchin Spill, Lateral 12 Spill, Lateral 8-B Spill, Elm Creek, and Seco Creek; and a Parshall flume at the Lateral 2 Sand Trap Spill into Las Moras Creek immediately below the canal siphon.

RECORDS: Based on the weir discharge table and a continuous record of gage heights. All storm flow occurring at these stations is deducted from the records and is not shown below. Records available: April 1959 through 1984. Records prior to 1976 were published under the title "Return Flow to the Rio Grande from Maverick Canal - Maverick Dam to Eagle Pass, Texas."

REMARKS: In addition to the flows listed below, water from the Maverick Canal is returned to the Rio Grande in this reach at the Maverick Power Plant (see page 50).

EXTREME FLOWS FROM RECORDS:

		Average Flow in Second-Feet (Cubic Meters per Second)**			
Daily:	Max. 929 (26.3)	Sept. 29, 1975	Min. 8.1 (0.23)	September 29, 1984	
Monthly:	Max. 154 (4.35)	June 1958	Min. 12.1 (0.34)	September 1984	
Yearly:	Max. 126 (3.57)	1958	Min. 29.4 (0.83)	1984	

Mean Daily Discharge in Second-Feet 1984 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	31.2	28.5	36.6	51.7	42.1	23.2	30.9	26.5	19.7	8.7	17.3	11.1
2	30.9	32.0	40.9	46.2	42.4	28.6	31.8	23.5	19.3	8.7	16.6	11.4
3	31.8	41.9	46.3	46.7	39.1	22.8	29.1	20.4	19.4	8.9	16.4	11.1
4	32.8	38.7	47.9	39.2	41.6	24.6	34.1	22.8	18.8	9.2	16.4	11.0
5	30.0	33.3	41.4	42.8	42.8	23.9	37.6	23.5	17.1	9.6	15.3	11.6
6	29.1	36.4	43.5	55.9	32.1	20.9	34.9	27.6	16.2	9.5	14.6	11.7
7	28.6	44.3	39.9	48.2	32.2	23.0	29.5	28.8	16.1	9.4	14.5	11.9
8	28.9	42.5	45.8	47.1	35.2	24.7	31.7	26.9	15.9	9.6	14.6	13.0
9	31.2	41.6	48.5	42.0	36.0	37.6	30.2	38.9	14.6	16.5	14.3	14.5
10	30.0	43.5	51.8	48.7	33.6	24.3	26.9	41.2	14.0	30.5	12.2	15.8
11	26.5	41.5	60.8	52.1	40.1	28.2	28.1	40.2	12.6	27.3	12.0	15.4
12	24.5	39.9	57.8	49.3	39.5	32.3	23.5	35.4	11.8	32.4	12.4	15.4
13	23.0	38.8	47.8	51.2	41.3	32.0	19.9	34.7	11.4	39.3	14.0	18.0
14	23.0	42.9	46.3	51.1	46.7	28.9	20.7	32.4	10.4	38.9	16.1	17.5
15	23.8	38.0	46.1	37.3	53.6	31.5	24.8	49.0	10.0	36.2	17.2	17.4
16	23.0	32.8	44.2	32.7	69.0	27.4	20.9	47.5	9.7	32.2	12.8	17.2
17	22.3	32.3	49.1	37.4	54.4	19.3	26.7	45.4	9.6	26.4	13.2	17.0
18	21.2	35.3	57.2	43.3	40.3	22.2	28.7	49.1	9.8	25.6	13.1	20.0
19	19.2	37.8	51.9	50.3	36.6	29.1	24.7	37.4	9.4	26.2	13.1	22.3
20	18.1	36.1	47.3	67.2	35.1	27.9	25.7	35.0	9.4	25.5	13.2	23.8
21	19.0	39.9	50.5	37.1	186	24.5	26.0	44.5	9.3	23.8	12.9	22.4
22	20.5	36.8	54.5	31.6	79.8	32.5	23.0	48.7	9.4	22.3	12.6	20.4
23	22.2	39.5	51.3	38.8	29.0	37.8	19.2	35.2	9.8	21.8	12.7	22.1
24	26.2	41.4	48.0	41.1	25.2	27.3	17.7	28.2	9.1	21.0	13.5	20.2
25	27.3	39.3	50.8	51.6	23.1	29.8	23.7	37.1	8.6	20.8	13.3	19.0
26	28.1	37.0	45.5	48.9	28.1	25.1	26.4	55.9	8.2	20.3	12.8	18.0
27	26.8	30.0	47.4	49.5	20.0	21.9	25.6	49.3	8.4	19.3	12.4	18.0
28	29.1	31.7	45.6	50.8	23.8	24.2	26.8	42.0	8.4	19.6	13.0	18.6
29	32.7	32.4	47.2	42.7	31.2	27.8	22.2	24.8	8.1	19.0	11.6	18.3
30	28.9		44.7	41.7	22.3	28.3	22.7	20.3	8.4	18.4	11.8	18.1
31	31.1		46.4		23.4		22.2	20.4		17.7		19.9
Sum	321.0	1,036.2	1,493.0	1,373.3	1,317.6	811.6	815.9	1,092.6	361.9	655.7	416.4	521.9

Month	Extreme Gage Feet		Current Year 1984				Average Second-Feet	Total Acre-Feet	Period 1968-1984		
	High	Low	Extreme Second-Feet		Low	Acre-Feet			Average	Maximum	Minimum
			Day	High			Day	Low			
Jan.			4	32.8	20	18.1	26.5	1,628	3,523	7,640	1,628
Feb.			7	44.3	1	28.5	37.5	2,154	3,223	6,126	1,826
Mar.			12	67.8	1	36.6	48.2	2,961	4,283	6,437	2,732
Apr.			20	57.2	22	31.6	45.9	2,724	4,403	7,795	2,724
May			21	186	27	20.0	42.5	2,613	4,111	8,178	2,613
June			23	37.8	17	19.3	27.1	1,610	4,339	9,190	1,610
July			5	37.6	24	17.7	25.3	1,618	4,562	8,157	1,618
Aug.			26	55.9	30	20.3	35.2	2,167	4,580	3,261	2,167
Sept.			1	19.7	29	8.1	12.1	718	3,746	7,580	718
Oct.			13	39.3	1	8.7	21.2	1,301	3,683	6,564	1,301
Nov.			1	17.3	29	11.5	13.9	826	3,465	8,595	826
Dec.			20	23.9	4	11.0	16.8	1,035	3,102	5,774	1,035
Yearly				186		8.1	29.4	21,355	47,051	91,498	21,355
	Meters		Cubic Meters per Second				Thousands of Cubic Meters				
				5.27		0.23	0.83	25,341	53,041	112,853	26,341

** Period 1968-1984

Ø Mean daily

! And other days

RIO GRANDE AT PIEDRAS NEGRAS, COAHUILA AND EAGLE PASS, TEXAS

DESCRIPTION: Cableway, gravity well, water-stage recorder, and resistance-type transmitter located on the left bank at latitude 28°42'50", longitude 100°30'25", and river mile 497.0 (799.8 km), 0.6 river mile (1.0 km) upstream from the international highway bridge between Eagle Pass, Texas and Piedras Negras, Coahuila and 77.0 river miles (123.8 km) downstream from Amistad Dam. The zero of the gage is 682.91 feet (208.15 m) above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 36 discharge measurements during the year, 24 by the Mexican Section and 12 by the United States Section of the Commission, and a continuous record of gage heights. Computations by shifting control methods. Records available: May 1900 through March 1914; August 1914 through April 1916; September 1916; September and October 1917; October 1918; September and October 1919; August and September 1920; June 1922; September, November, and December 1923; and 1924 through 1984. Records prior to 1976 were published under the title "Rio Grande at Eagle Pass, Texas."

REMARKS: Reservoirs, diversions, and drainage returns modify the river flow at this station. The transmitter is coupled, via leased telephone circuits, to a receiver located in the office of the Eagle Pass and Piedras Negras Bridge Company, from where the Wheatstone bridge circuit can be balanced to indicate the existing gage height. This system is operated in cooperation with the National Weather Service.

EXTREME FLOWS FROM RECORDS: Momentary: Max. 954,100 second-feet (27,300 m³/sec), determined by slope-area calculations, on June 29, 1954 with a gage height of 53.51 feet (16.31 m). Well-authenticated information indicates the occurrence of a flood in June 1865 with an estimated discharge of 1,236,000 second-feet (35,000 m³/sec) and a gage height of 56.00 feet (17.07 m) on the present gage, and also that these were the only floods since 1745 with flows greater than 825,000 second-feet (23,400 m³/sec). Min. 24.4 second-feet (0.69 m³/sec) on June 22, 1953 with a gage height of 0.07 foot (0.02 m).

Average Flow in Second-Feet (Cubic Meters per Second)**

Daily: Max.	101,400 (2,870)	July 19, 1975	Min.	173 (4.90)	April 25, 1984
Monthly: Max.	22,000 (622)	Sept. 1974	Min.	323 (9.16)	June 1969
Yearly: Max.	5,190 (147)	1974	Min.	971 (27.5)	1972

Mean Daily Discharge in Second-Feet 1984 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1,940	2,250	2,120	4,030	855	823	2,190	3,530	3,480	1,450	932	780
2	1,980	2,330	2,120	4,060	819	685	2,200	3,530	3,260	1,410	819	795
3	2,090	2,310	2,140	4,560	2,990	632	2,550	3,480	3,300	1,360	858	759
4	2,190	2,300	2,210	5,050	11,000	667	2,850	3,320	3,350	1,370	911	795
5	2,070	2,300	2,210	4,370	11,800	876	3,290	3,240	3,230	1,430	759	848
6	2,040	2,290	2,180	6,430	11,900	1,820	3,310	3,280	3,260	1,330	770	1,190
7	2,040	2,260	2,230	7,800	11,700	2,010	3,360	3,330	3,270	1,230	798	1,530
8	2,070	2,250	2,210	7,840	8,330	1,910	3,400	3,330	3,290	1,200	731	1,650
9	2,160	2,250	2,140	7,700	6,750	1,850	3,380	3,360	2,960	3,730	720	1,530
10	1,980	2,290	2,140	8,620	6,640	1,900	3,430	3,510	2,900	2,130	731	1,460
11	1,260	2,290	2,220	9,390	8,020	1,860	3,430	3,520	2,930	19,000	717	1,470
12	1,080	2,340	2,280	9,450	8,440	1,830	3,340	3,570	2,950	9,220	713	1,470
13	1,060	2,320	2,270	7,660	8,480	1,820	3,320	3,570	2,980	3,450	738	1,490
14	999	2,200	2,210	3,960	8,440	1,840	3,320	3,200	2,970	4,660	752	1,500
15	1,070	1,390	2,220	1,870	8,400	1,820	3,350	2,600	2,990	3,020	766	1,490
16	1,050	975	2,410	1,740	8,400	1,810	3,350	2,750	2,520	1,920	798	1,600
17	1,030	989	2,740	1,410	8,190	1,860	3,310	2,750	2,440	1,620	756	1,810
18	1,030	929	2,740	1,030	8,900	1,830	3,340	2,850	2,430	1,490	784	1,810
19	961	971	2,710	1,030	7,310	1,680	3,330	2,930	1,940	1,450	763	1,790
20	939	1,030	2,650	773	7,350	1,770	3,320	2,110	1,540	1,420	731	1,770
21	911	1,050	2,620	625	7,130	1,790	3,370	2,440	1,470	1,440	703	1,760
22	922	1,010	2,560	699	5,970	1,800	3,400	2,470	1,470	1,360	682	1,760
23	925	1,530	2,670	530	2,790	1,760	3,410	2,850	1,470	1,310	692	1,740
24	989	2,200	2,810	277	1,680	1,780	3,390	3,410	1,490	1,300	731	1,750
25	929	2,160	2,750	173	1,510	1,710	4,030	3,400	1,450	1,310	826	1,800
26	918	2,280	2,760	424	1,330	1,660	4,450	3,350	1,400	1,340	805	1,790
27	872	2,170	2,700	459	1,050	1,750	3,670	3,410	1,410	1,300	780	1,790
28	823	2,140	2,560	569	975	2,060	3,600	3,710	1,470	1,260	780	1,790
29	869	2,130	2,580	996	1,100	2,530	3,600	3,810	1,590	950	759	1,770
30	890	3,190	951	1,130	2,160	1,130	3,570	3,810	1,670	805	773	1,780
31	1,460	4,030		982			3,570	3,850		840		2,730
Sum	41,547	54,934	77,380	104,996	180,361	50,293	103,430	100,270	72,870	77,155	23,098	48,047

Current Year 1984

Period 1968-1984

Month	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet		
	High	Low	Day	High	Day	Low			Average	Maximum	Minimum
Jan.	3.38	2.33	1 4	2,330	28	795	1,340	82,444	103,962	217,295	26,191
Feb.	3.41	2.33	1 2	2,380	118	749	1,900	108,984	129,462	448,150	35,604
Mar.	4.53	3.18	30	4,410	1	2,000	2,500	153,484	136,044	397,213	20,839
Apr.	6.86	1.74	12	9,500	125	86.5	3,500	208,247	119,052	351,859	24,030
May	7.81	2.43	5	12,000	2	749	5,830	357,820	210,759	588,871	36,193
June	5.05	2.20	29	2,850	1 3	579	1,680	99,724	169,487	415,943	19,254
July	5.05	3.28	26	5,300	2	2,140	3,340	205,106	199,928	779,878	26,100
Aug.	4.66	2.82	31	4,480	20	1,420	3,230	198,943	192,313	743,286	56,855
Sept.	4.69	2.79	4	4,590	27	1,380	2,430	144,546	248,268	1,306,836	30,699
Oct.	15.45	2.33	11	37,400	30	738	2,490	152,986	220,974	891,747	58,642
Nov.	2.49	2.26	1	978	22	650	770	45,803	133,556	570,870	45,803
Dec.	4.07	2.33	31	3,390	3	738	1,550	95,269	100,479	263,589	26,197
Yearly	15.45	1.74		37,400		86.5	2,550	1,853,356	1,964,284	3,753,039	705,670
	Meters		Cubic Meters per Second				Thousands of Cubic Meters				
	4.71	0.53		1,060		24.5	72.3	2,286,037	2,422,918	4,629,385	870,435

** Period 1968-1984

* Discharge measurement made on this day

! And other days

RIO ESCONDIDO AT VILLA DE FUENTE, COAHUILA

DESCRIPTION: Cableway, gravity well, concrete control weir of 1,750 second-foot (50 m³/sec) capacity, and water-stage recorder located on the downstream side of the left abutment of the highway bridge over Rio Escondido on the outskirts of Villa de Fuente, Coahuila, 1.2 river miles (1.9 km) downstream from the cableway at latitude 28°40'05", longitude 100°31'00", about 3 miles (5 km) southwest of Piedras Negras, Coahuila, 3.7 river miles (6.0 km) from the confluence with the Rio Grande, and 6.8 river miles (10.9 km) downstream from the confluence of Rio San Antonio with Rio Escondido. Rio Escondido enters the Rio Grande at river mile 493.2 (793.8 km), 3.1 river miles (5.0 km) downstream from the international highway bridge between Eagle Pass, Texas and Piedras Negras, Coahuila. The zero of the gage is 718.37 feet (218.96 m) above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 18 discharge measurements during the year, 16 by the Mexican Section and 2 by the United States Section of the Commission, and a continuous record of gage heights. Records available: 1922 through 1984. Records from 1922 through September 1932 are considered doubtful.

REMARKS: Diversions and drainage returns modify the flow of this spring-fed stream at this station. Backwater from the Rio Grande reached an elevation of 729.92 feet (222.48 m) during the flood of June 1954. Prior to November 1954, the gage well was located at the present cableway site. The weir was destroyed by a flood on September 24, 1964. On November 25, 1969, the concrete control weir was finished and placed in operation.

EXTREME FLOWS FROM RECORDS:** Momentary: Max. 24,000 second-feet (630 m³/sec) on June 29, 1935 with a gage height of 19.13 feet (5.83 m). Min. frequently no flow.

Average Flow in Second-Feet (Cubic Meters per Second)**

Daily:	Max. 13,100 (371)	Sept. 24, 1964	Min. 0	Several days 1956-1958, 1965 & 1994
Monthly:	Max. 827 (23.4)	Sept. 1964	Min. 0.3 (0.01)	September 1965
Yearly:	Max. 219 (6.21)	1976	Min. 2.4 (0.07)	1966

Mean Daily Discharge in Second-Feet 1984 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	26.1	35.7	24.4	12.7	3.9	4.2	1.8	0.4	0	1.1	19.8	16.6
2	28.6	35.7	22.6	12.7	3.9	2.5	2.5	.4	0	1.1	19.8	16.6
3	30.0	34.3	23.7	12.7	3.2	2.8	1.8	.4	0	1.1	19.8	15.5
4	30.0	33.2	23.0	11.3	3.5	2.8	1.4	.4	.4	.7	19.8	15.9
5	30.0	32.8	24.7	10.2	3.5	2.5	.7	.4	.4	.7	19.8	16.2
6	30.0	32.8	24.0	8.1	3.9	2.1	.7	.4	.4	1.1	19.8	16.6
7	30.0	32.1	23.7	9.2	2.8	1.8	1.1	.4	.4	1.1	17.7	16.6
8	30.4	31.8	21.9	9.2	2.5	1.8	1.4	.4	.7	.7	15.5	17.0
9	30.7	33.9	24.4	7.8	2.1	1.8	.7	.4	.7	.7	19.9	18.0
10	30.7	37.1	24.0	7.1	2.1	1.1	.7	.4	.7	5.3	15.5	17.7
11	30.0	38.1	24.7	6.7	2.1	1.4	.7	.4	.4	2,300	15.5	18.0
12	30.0	37.1	25.1	7.1	2.1	1.4	.7	.4	.4	66.4	14.8	18.0
13	30.0	35.7	21.5	6.4	2.1	1.4	.7	.4	.4	145	15.5	18.4
14	30.4	37.4	23.0	6.7	14.1	1.4	.7	.4	.4	21.2	15.5	18.4
15	30.7	37.4	28.3	6.7	5.6	1.1	.7	.4	.4	25.8	15.5	18.7
16	33.5	36.7	27.5	10.6	4.9	1.1	.7	.4	.4	22.6	15.5	19.1
17	33.5	37.4	26.8	7.8	86.2	1.1	.7	.4	.4	17.7	16.2	19.1
18	34.3	36.7	27.2	4.9	84.0	1.1	.7	.4	.7	15.5	15.9	19.4
19	32.8	35.7	27.2	4.6	37.1	1.1	.7	.4	.7	16.6	15.9	19.4
20	32.8	35.7	27.2	3.9	25.1	.7	.7	.4	.7	12.4	16.2	19.8
21	32.8	36.4	27.2	3.5	17.3	.7	.7	.4	.7	12.4	15.9	19.8
22	33.5	35.7	26.1	3.9	9.5	.7	.7	.4	.7	12.4	15.9	19.8
23	34.3	27.9	19.8	3.5	8.1	.7	.7	.4	.7	12.4	16.6	19.8
24	34.3	24.0	11.7	3.9	5.6	.7	.7	.4	.4	14.5	18.0	18.7
25	33.5	21.9	10.6	3.5	3.5	.7	.7	.4	.4	23.7	22.6	17.7
26	35.0	20.8	11.3	3.9	3.5	.7	.7	.4	.4	20.8	20.5	17.7
27	32.8	20.5	11.7	3.5	3.2	.7	.7	.4	.4	20.8	18.7	18.7
28	31.4	21.2	9.9	4.6	7.1	.7	.7	.4	.7	19.8	17.7	19.8
29	30.7	21.2	10.2	4.2	20.1	13.4	.4	0	1.1	18.7	16.2	19.8
30	31.8	10.2	3.5	11.3	1.1	1.1	.4	0	1.4	18.7	15.9	19.8
31	33.9		11.3		4.2		.4	0		19.8		93.9
Sum	978.5	936.9	694.9	204.4	388.1	55.3	26.6	10.8	15.5	2,860.0	520.0	644.8

Month	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet		
	High	Low	Day	High	Low	Day			Average	Maximum	Minimum
	Jan.	0.98	0.85	26	37.4	1	25.1	31.4	1,942	3,043	18,930
Feb.	1.02	.75	111	39.6	25	20.1	32.1	1,858	2,293	14,433	38.9
Mar.	.39	.59	15	29.3	28	9.2	21.2	1,299	1,396	11,407	92.4
Apr.	.69	.43	1	14.1	26	2.5	6.7	405	2,243	21,950	81.1
May	2.00	.39	17	232	9	1.8	12.4	770	3,848	25,470	154
June	1.15	.33	29	53.3	120	.7	1.8	109	2,620	19,730	60.3
July	.39	.23	2	2.5	129	.4	.7	52.7	2,037	15,568	52.7
Aug.	.30	.16	9	.7	128	0	.4	19.5	3,436	30,106	19.5
Sept.	.33	.16	30	1.4	1	0	.4	29.2	4,587	49,182	17.8
Oct.	8.83	.26	11	12,300	1	.7	92.2	5,677	4,051	28,327	43.8
Nov.	.85	.69	25	24.4	12	13.4	17.3	1,032	3,240	25,730	43.8
Dec.	2.49	.72	31	413	2	15.5	20.8	1,278	2,884	22,003	67.3
Yearly	8.83	0.16		12,300		0	19.8	14,471.4	36,178	159,211	1,755.3
	Meters		Cubic Meters per Second				Thousands of Cubic Meters				
	2.69	0.05		347		0	0.56	17,852	44,624	196,385	2,164

** Period 1932-1984

* Discharge measurement made on this day

! And other days

RETURN FLOW TO THE RIO GRANDE FROM THE MAVERICK IRRIGATION DISTRICT BELOW EAGLE PASS, TEXAS

DESCRIPTION: Part of the water diverted from the Rio Grande into the Maverick Canal is returned to the river through various drains and spillways of the irrigation system located between Eagle Pass, Texas and the El Indio Gaging Station. These return flows are measured at gaging stations consisting of sharp-crested Cipollatti weirs or control structures equipped with continuous water-stage recorders located at Lateral 40 Spill, Lateral 40-D Spill, Canon Diablo, Lateral 50 Spill, Lateral 50 Lowline No. 2, Rosita Creek, Lateral 60-K Spill, Sauz Creek, Lateral 70 Spill No. 2, Indio Creek, Gravel Spill, and Cuervo Creek.

RECORDS: Based on the weir discharge table, stable station control rating tables, and a continuous record of gage heights. All storm flow occurring at these stations is deducted from the records and is not shown below. Records available: April 1959 through 1984. Records prior to 1976 were published under the title "Return Flow to the Rio Grande from Maverick Canal, Eagle Pass to San Antonio Crossing."

EXTREME FLOWS FROM RECORDS:

		Average Flow in Second-Foot (Cubic Meters per Second)**				
Daily:	Max. 350 (9.91)	July 5, 1968	Min. 4.7 (0.13)	September 17, 1984		
Monthly:	Max. 247 (7.00)	July 1958	Min. 10.4 (0.29)	September 1954		
Yearly:	Max. 180 (5.10)	1971	Min. 43.1 (1.22)	1984		

Mean Daily Discharge in Second-Foot 1984 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	112	94.5	66.6	55.4	31.5	39.4	73.4	36.2	19.7	8.6	12.5	84.5
2	119	35.3	56.2	55.5	43.1	32.1	81.6	36.2	11.2	9.1	11.7	43.8
3	124	77.5	54.2	61.9	35.2	31.5	69.4	35.7	10.6	12.4	10.4	62.3
4	112	59.2	70.0	74.6	55.9	32.8	72.3	33.4	10.4	19.2	10.4	49.2
5	92.9	78.0	55.5	50.3	91.1	35.5	64.9	36.4	10.1	14.2	24.6	74.7
6	102	73.2	62.8	37.3	70.4	40.8	62.6	41.8	10.8	9.0	23.1	91.5
7	119	53.4	76.0	33.6	61.4	44.0	53.9	38.1	7.6	8.1	22.0	58.9
8	113	41.4	73.1	35.8	38.6	46.9	46.6	35.2	6.8	7.4	20.2	38.4
9	118	54.8	45.7	33.1	44.5	47.0	41.6	33.6	5.0	6.2	16.1	33.6
10	113	61.6	34.1	32.7	44.2	48.1	36.5	33.6	5.5	7.3	37.9	28.6
11	104	69.4	51.3	66.3	47.9	46.4	32.7	37.4	4.8	15.6	78.7	22.9
12	102	57.1	83.9	47.1	47.6	52.2	33.1	42.9	26.7	31.4	66.3	17.3
13	106	52.2	65.0	38.2	51.4	49.2	36.1	41.9	41.2	31.1	43.4	15.3
14	107	61.3	50.6	40.6	56.1	42.6	28.2	40.1	27.7	26.7	42.2	18.5
15	91.9	66.4	42.2	35.8	55.6	36.1	33.2	40.3	10.1	23.3	44.8	19.8
16	55.2	58.0	36.6	48.2	57.8	33.7	45.5	36.5	5.3	21.9	31.3	29.1
17	51.2	60.2	33.6	44.4	91.8	40.6	53.1	36.5	4.7	18.3	25.7	30.6
18	44.7	64.7	33.7	51.8	119	38.7	56.9	42.6	5.9	16.5	25.0	27.7
19	57.3	67.9	30.1	49.7	100	39.4	44.2	40.6	9.0	15.3	21.2	23.6
20	55.5	72.3	28.7	43.3	54.9	42.0	39.9	33.5	8.7	15.4	24.8	26.8
21	53.7	77.9	42.0	30.5	37.7	37.4	35.1	36.3	7.2	15.3	49.4	23.8
22	55.4	77.5	56.5	40.5	27.0	38.5	29.8	42.5	7.1	14.7	68.9	27.5
23	51.0	80.5	51.2	38.9	21.2	39.6	28.0	32.8	5.9	14.9	59.5	29.7
24	74.5	72.2	40.9	38.7	20.0	36.3	26.4	40.8	6.2	14.3	68.0	30.3
25	44.9	75.6	40.3	39.2	21.3	31.8	24.7	24.9	8.2	13.5	77.6	30.2
26	54.2	67.6	46.9	33.7	21.2	33.7	33.2	22.8	7.5	12.4	73.2	30.6
27	54.3	50.4	51.0	30.4	20.1	36.3	33.6	27.4	8.0	10.4	74.9	30.3
28	54.2	73.8	47.6	31.4	18.1	45.9	30.6	53.3	6.0	10.1	99.6	28.4
29	55.5	79.1	42.9	29.4	16.7	50.8	30.0	43.7	6.6	30.0	60.4	26.2
30	56.0		44.2	25.1		28.2	50.2	54.5	48.7	8.2	19.9	44.9
31	81.3		43.9		53.0		34.6	21.1		14.3		28.5
Sum		1,983.0		1,273.4		1,220.0		1,146.9		487.3		1,109.4
	2,546.2		1,592.3		1,492.5		1,366.2		312.7		1,268.8	

Current Year 1984									Period 1968-1984		
Month	Extreme Gage Feet		Extreme Second-Foot				Average Second-Foot	Total Acre-Foot	Acre-Foot		
	High	Low	Day	High	Day	Low			Average	Maximum	Minimum
Jan.			3	124	18	44.7	82.1	5,050	5,977	12,728	2,487
Feb.			1	94.5	8	41.4	68.4	3,933	5,848	10,704	2,152
Mar.			12	83.9	20	28.7	51.0	3,138	7,832	11,675	3,124
Apr.			4	74.6	30	25.1	42.4	2,526	9,571	14,646	2,526
May			18	119	29	16.7	48.1	2,950	7,844	14,327	2,374
June			12	52.2	3	31.5	40.7	2,420	8,256	14,384	2,224
July			2	31.6	25	24.7	44.1	2,710	7,982	15,180	2,710
Aug.			28	53.3	31	21.1	37.0	2,275	7,336	11,585	2,275
Sept.			13	41.2	17	4.7	10.4	620	6,037	9,162	520
Oct.			12	31.4	9	6.2	15.7	967	5,714	8,220	967
Nov.			23	99.6	3	10.4	42.3	2,517	5,989	10,790	2,517
Dec.			6	91.5	13	15.3	35.3	2,200	6,240	12,797	1,369
Yearly				124		4.7	43.1	31,316	84,626	130,553	31,316
	Meters		Cubic Meters per Second				Thousands of Cubic Meters				
				3.51		0.13	1.22	33,628	104,384	161,049	38,623

** Period 1968-1984

Ø Mean daily

! And other days

RIO GRANDE NEAR EL INDIO, TEXAS AND VILLA GUERRERO, COAHUILA

DESCRIPTION: Cableway, bubbler gage, concrete control weir, and water-stage recorders (graphic and digital) located on the left bank at latitude 28°20'45", longitude 100°18'35", and river mile 450.4 (741.0 km), 0.6 river mile (0.9 km) downstream from Cuervo Creek, which marks the lower end of the Maverick County Water Control and Improvement District No. 1, 1.9 river miles (3.1 km) upstream from Tovar Creek, 5 miles (8.0 km) north-east of Villa Guerrero, Coahuila, about 11.5 miles (18.5 km) south of El Indio, Texas, and 35.9 river miles (57.8 km) downstream from the international highway bridge between Eagle Pass, Texas and Piedras Negras, Coahuila. The zero of the gage is 580.00 feet (176.78 m) above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 24 discharge measurements during the year and a continuous record of gage heights. Computations for high flows by shifting control methods. Low and medium flow computations based on a stable control weir rating curve defined by meter measurements. Records available: March, April, May, October, November, and December 1952 with some days missing; January through August 20, 1953; September 23, 1953 through June 14, 1954; and May 27, 1955 through 1984 with several days missing prior to September 1955. Records prior to 1976 were published under the title "Rio Grande at San Antonio Crossing near El Indio, Texas."

REMARKS: Reservoirs, diversions, and drainage returns modify the river flow at this station.
EXTREME FLOWS FROM RECORDS: Momentary: Max. 912,000 second-feet (25,800 m³/sec) in June 1954, determined by slope-area computation, with an elevation of 624.31 feet (190.29 m). Min. 54.4 second-feet (1.54 m³/sec) on June 24, 1953 with an elevation of 581.95 feet (177.38 m) at a station 1,700 feet (518 m) upstream from the present site.

Average Flow in Second-Feet (Cubic Meters per Second)**

Daily:	Max. 96,400 (2,730)	July 19, 1975	Min. 327 (9.26)	June 29 & 30, 1972
Monthly:	Max. 21,300 (617)	Sept. 1974	Min. 531 (14.2)	June 1969
Yearly:	Max. 5,300 (150)	1974	Min. 1,230 (34.8)	1972

Mean Daily Discharge in Second-Feet 1984 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	2,250	1,790	1,930	3,920	831	1,050	2,380	3,500	3,840	1,510	972	905
2	2,010	2,120	1,950	4,000	953 *	913	2,410 *	3,510	3,310	1,380	976	797
3	2,230	2,210	1,950	4,070	810	812	2,440	3,450	3,270	1,350 *	885	783
4	2,380	2,230	2,000	4,800	7,699	814 *	2,770	3,440	3,330	1,330	952	742
5	2,250 *	2,210	2,040	4,510 *	11,100	810	3,490	3,460	3,250	1,350	992	798 *
6	2,070	2,200	2,030 *	4,990	11,200	1,360	3,520	3,460	3,200 *	1,350	869 *	873
7	2,110	2,170 *	2,010	7,300	11,100	1,940	3,540	3,390	3,230	1,100	886	1,260
8	2,140	2,150	2,060	7,440	9,550	1,990	3,600	3,370 *	3,240	1,170	847	1,480
9	2,310	2,170	2,020	7,400	6,760	1,910	3,570	3,360	3,120	1,430	803	1,570
10	2,270	2,230	1,960	7,760	5,660	1,900	3,600	3,320	2,870	3,530	738	1,480
11	1,730	2,180	1,990	9,030	7,250	1,930	3,600	3,330	2,830	9,920	832	1,420
12	1,230	2,220	2,110	9,090	8,140	1,850	3,580	3,350	2,910	19,600	808	1,400
13	1,200	2,240	2,130	8,480	9,150	1,850	3,490	3,370	2,900	4,250	763	1,400
14	1,190	2,200	2,090	5,570	3,230	1,890	3,450	3,330	2,880	7,550	737	1,400
15	1,140	1,890	2,010	2,480	8,260	1,840	3,450	2,350	2,840	4,910	720	1,410
16	1,120	1,140	2,110	1,970	8,270 *	1,810	3,510	2,440	2,830	2,630	722	1,410
17	1,100	934	2,470	1,770 *	8,780	1,840	3,480 *	2,490	2,450	1,810 *	748	1,560
18	1,090	927	2,590	1,320	8,990	1,850	3,480	2,570	2,350 *	1,610	727	1,690 *
19	1,350	939	2,590	1,130	7,540	1,800 *	3,480	2,660	2,230	1,530	755	1,590
20	1,030	934	2,550 *	1,940	7,420	1,710	3,470	2,580 *	1,680	1,490	697	1,710
21	1,010	972 *	2,560	828	7,150	1,820	3,490	2,190	1,480	1,490	707 *	1,790
22	1,300	947	2,570	749	5,990	1,820	3,530	2,590	1,450	1,430	710	1,710
23	1,000 *	910	2,530	768	4,130	1,820	3,540	2,750	1,470	1,380	710	1,730
24	1,010	1,670	2,750	658	2,140	1,800	3,500	3,530	1,450	1,340	735	1,720
25	1,000	1,930	2,610	541	1,720	1,790	3,640	3,560	1,430	1,340	802	1,740
26	971	1,970	2,730	458	1,520	1,760	4,330	3,560	1,420	1,350	337	1,770
27	941	1,920	2,790	610	1,270	1,710	3,400	3,570	1,400	1,380	795	1,780
28	832	1,920	2,670	903	1,090	2,020	3,600	3,710	1,390	1,330	791	1,510
29	865	1,920	2,540	728	1,070	2,180	3,590	3,990	1,570	1,220	794	1,820
30	332		2,590	931	1,210	2,700	3,610	3,990	1,690	1,030	718	1,820
31	951		3,940		1,170		3,540	3,950		910		3,070
Sum	44,242	51,213	72,870	105,084	176,994	51,239	106,530	100,290	73,360	85,310	24,989	46,348

Month	Current Year 1984							Period 1964-1984				
	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet			
	High	Low	Day	High	Day	Low			Average	Maximum	Minimum	
Jan.	7.00	5.09	4	2,520	29	851	1,430	37,753	118,025	221,917	47,179	
Feb.	6.92	5.09	3	2,300	118	817	1,770	101,590	139,205	444,379	51,336	
Mar.	7.66	5.69	31	4,140	1	1,860	2,350	184,536	148,121	423,055	37,442	
Apr.	9.56	5.73	12	9,240	26	425	3,500	293,431	134,315	361,567	37,386	
May	8.30	5.04	5	11,200	3	765	5,710	351,062	228,240	600,198	50,723	
June	7.34	5.99	30	3,340	1	733	1,710	101,750	193,725	473,563	29,808	
July	7.85	6.37	26	4,760	3	2,310	3,440	211,498	212,541	793,688	37,228	
Aug.	7.74	6.50	30	4,420	21	1,560	3,240	198,922	211,323	824,033	56,322	
Sept.	7.72	6.39	1	4,350	127	1,170	2,450	145,597	262,345	1,235,159	33,327	
Oct.	11.53	6.10	12	74,200	31	866	2,750	159,210	235,255	963,003	55,895	
Nov.	6.22	5.97	5	1,040	120	534	803	47,774	140,134	552,893	47,773	
Dec.	7.62	5.97	31	4,070	4	719	1,590	91,980	115,512	276,020	49,819	
Yearly	11.53	5.73		74,200		425	2,550	1,359,957	2,144,742	3,935,752	836,415	
	Meters		Cubic Meters per Second				Thousands of Cubic Meters					
	3.51	1.75		959		12.0	72.5	2,294,229	2,645,496	4,731,400	1,109,729	

** Period 1968-1974

* Discharge measurement made on this day

! And other days

RIO GRANDE AT VILLA HIDALGO, COAHUILA NEAR LAREDO, TEXAS

DESCRIPTION: Cableway, gravity well, and water-stage recorder located on the right bank on the outskirts of Palafox, Webb County, Texas and Villa Hidalgo, Coahuila at latitude 27° 47' 55", longitude 99° 52' 40", and river mile 406.0 (653.4 km) 1.9 river miles (3.1 km) downstream from Arroyo Agua Verde in Mexico, 13.1 river miles (21.1 km) upstream from Santo Tomas Creek in United States, and 45.1 river miles (72.6 km) upstream from the old international highway bridge between Laredo, Texas and Nuevo Laredo, Tamaulipas. The zero of the gage is 436.02 feet (132.90 m) above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 29 discharge measurements during the year, 18 by the Mexican Section and 11 by the United States Section of the Commission, and a continuous record of gage heights. Computations by shifting control methods. High flows prior to early 1962 were computed from a rating curve developed after the cableway was installed. Records available: August 1959 through 1984. Records prior to 1976 were published under the title "Rio Grande at Palafox near Laredo, Texas."

REMARKS: Reservoirs, diversions, and drainage returns modify the river flow at this station. The recorder was installed on August 5, 1959 and the cableway in early 1962.

EXTREME FLOWS FROM RECORDS: Momentary: Max. 214,000 second-feet (6,060 m³/sec) on September 25, 1964 with a gage height of 42.06 feet (12.82 m). Min. 314 second-feet (8.90 m³/sec) on June 30 and July 1, 1972 with a gage height of -0.66 foot (-0.20 m).

Average Flow in Second-Feet (Cubic Meters per Second)**

Daily:	Max.	134,000 (3,800)	June 29, 1971	Min.	314 (8.90)	July 1, 1972
Monthly:	Max.	21,000 (595)	Sept. 1974	Min.	434 (12.3)	June 1969
Yearly:	Max.	5,470 (155)	1974	Min.	1,270 (35.9)	1972

Mean Daily Discharge in Second-Feet 1984 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	2,160	1,000	2,070 *	3,920	1,010	1,200	2,610	3,570	4,060	1,580	929	823
2	2,240	2,010	2,040	3,920	982	1,050	2,430	3,530	3,740	1,450	986	816
3	2,340	2,310	2,070	4,060 *	869 *	932	2,430 *	3,530 *	3,710 *	1,430	996	833
4	2,420	2,339	2,080	4,590	2,550	773 *	2,690	3,510	4,030	1,410 *	911	816 *
5	2,380	2,330	2,130	5,010	10,400	798	2,860	3,530	3,430	1,400	929	784 *
6	2,220	2,320 *	2,110	4,980	10,900	770	3,530	3,530	3,280	1,450	953	777
7	2,220	2,290	2,080	6,500	10,900	1,470	3,530	3,480	3,260	1,430	862	848
8	2,270	2,280	2,110	7,490	10,700	2,070	3,600	3,430	3,280	1,390	879 *	1,080
9	2,360	2,270	2,140	7,520	7,490 *	2,050	3,670	3,480	3,320	1,240	840	1,320
10	2,430	2,290	2,090	7,490	6,780	1,990	3,640	3,410	2,990	3,190	791	1,360
11	2,340	2,350	2,090	8,510 *	6,710	2,040	3,640	3,400	2,820	3,200	805	1,280
12	1,740	2,320	2,130	9,110	7,730	2,030	3,640	3,460	2,860	21,900	823	1,200
13	1,310	2,350	2,210	9,110	8,230	1,970	3,640	3,480	2,890	7,310	791	1,200
14	1,230	2,340	2,190	7,350	8,190	1,970	3,500	3,480	2,900	8,300	766	1,210
15	1,210	2,310	2,130	4,480	8,400	1,990	3,480	3,210	2,870	6,640	773	1,260
16	1,190	1,820	2,100	2,390	8,400	1,960	3,480	2,360	2,890	3,780 *	791	1,240
17	1,160	1,190	2,240	2,140	9,180	1,910	3,530	2,580	2,650	2,380	791	1,230
18	1,140	982	2,590	1,910	8,620	1,980	3,570	2,570	2,470	1,910	791	1,380
19	1,110	968	2,610	1,440	8,650	1,960	3,530	2,680	2,380 *	1,720	784	1,530
20	1,090	936	2,590	1,250	7,450	1,850	3,530	2,750	2,140	1,600	798	1,600
21	1,050	961	2,570	1,130	7,420	1,830	3,530	2,260	1,620	1,570	784	1,660
22	1,020	999	2,580	950	7,200	1,910	3,530	2,520	1,470	1,540	791	1,680
23	996 *	989	2,570	897	7,130	1,900	3,530	2,680 *	1,430	1,490	805	1,720
24	1,020	1,000	2,580	893	5,090	1,900	3,600	2,990	1,470	1,440	840	1,800
25	1,050	1,930	2,840	840	3,010	1,920	3,600	3,670	1,460	1,420	879	1,850
26	1,030	2,130	2,690	745	2,030	1,840	3,600	3,710	1,430	1,440	911 *	1,900
27	985	2,140	2,770	590	1,610	1,810	3,600	3,640	1,410	1,450	879	1,900
28	953	2,050	2,710	675	1,170	1,800	3,670	3,670	1,390	1,470	872	1,900
29	915	2,070	2,550	713	1,100	2,200	4,200	3,920	1,810	1,410	848	1,980
30	893		2,560	784	1,100	2,740	4,340	4,060	2,120	1,300	855	3,270
31	918		2,910		1,260		3,920	4,060		1,050		3,250
Sum	47,390	53,265	73,130	111,387	182,261	52,613	107,650	102,120	77,580	90,290	25,413	45,497

Month	Current Year 1984						Period 1968-1984				
	Extreme Gage Feet		Extreme Second-Feet			Average Second-Feet	Total Acre-Feet	Acre-Feet			
	High	Low	Day	High	Day			Average	Maximum	Minimum	
Jan.	2.56	0.46	4	2,530	30	883	1,530	94,022	121,211	230,946	50,489
Feb.	2.43	-.46	11	2,400	1	883	1,840	105,691	140,566	455,925	48,884
Mar.	3.61	2.00	31	4,060	1	2,990	2,360	145,008	150,469	412,917	38,574
Apr.	6.30	-.49	112	9,180	127	551	3,710	220,923	139,032	356,909	36,522
May	7.15	-.23	16	11,000	3	752	5,860	361,609	234,362	611,076	26,344
June	3.12	-.13	30	3,280	1	4	699	104,346	224,895	750,690	25,768
July	4.13	2.40	30	4,940	4	2,370	3,470	213,569	224,238	921,377	30,729
Aug.	3.84	1.67	31	4,450	21	1,680	3,290	202,599	219,574	730,503	70,515
Sept.	4.40	1.25	1	5,400	28	1,380	2,590	153,896	266,378	1,250,870	93,812
Oct.	14.04	-.62	12	29,500	31	968	2,910	179,169	258,331	922,217	70,340
Nov.	.72	-.16	3	1,030	15	742	848	50,112	154,992	601,059	50,412
Dec.	3.54	.20	30	3,960	5	759	1,470	90,239	121,450	317,123	51,077
Yearly	14.04	-0.49		29,500		551	2,650	1,921,483	2,255,498	3,963,062	920,935
	Meters		Cubic Meters per Second				Thousands of Cubic Meters				
	4.28	-0.15		835		15.6	75.0	2,370,125	2,782,128	4,888,381	1,135,961

** Period 1968-1984

* Discharge measurement made on this day

! And other days

RIO GRANDE AT NUEVO LAREDO, TAMAULIPAS AND LAREDO, TEXAS

DESCRIPTION: Cableway, bubbler gage, and water-stage recorder located on the right bank at Laredo, Texas a latitude 27°29'45", longitude 99°29'25", and river mile 359.8 (579.0 km), immediately downstream from the Laredo, Texas sewage plant and 1.1 river mile (1.8 km) downstream from the old international highway bridge between Laredo, Texas and Nuevo Laredo, Tamaulipas. The zero of the gage is 345.28 feet (105.24 m) above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 45 discharge measurements during the year, 35 by the Mexican Section and 10 by the United States Section of the Commission, and a continuous record of gage heights. Computations by shifting control methods. Records available: May 1900 through 1913; May, June, and Oct. 1914; Sept. 1916; Sept. and Oct. 1917; Oct. 1918; Sept. and Oct. 1919; Aug. and Sept. 1920; June, Nov., and Dec. 1922; and 1923 through 1984. Gage height records are available for Jan., Feb., and Mar. 1914.

REMARKS: Reservoirs, diversions, and drainage returns modify the river flow at this station. This station was established in Jan. 1955 to replace the station 1.7 miles (2.7 km) upstream which was destroyed by the June-July 1954 flood. Prior to July 11, 1968 the recorder was located 0.2 river mile (0.3 km) upstream, where the cableway is still located, and the zero of the gage was 347.90 feet (106.04 m) above mean sea level, U. S. C. & G. S. datum.

EXTREME FLOWS FROM RECORDS: Momentary: Max. 716,900 second-feet (20,300 m³/sec) on June 30, 1954, determined by slope-area calculations, with a gage height of 61.35 feet (18.70 m). Much well-authenticated information established the occurrence of a greater flood in June 1865 with a gage height of 62.5 feet (19.05 m) on the same gage and discharge of approximately 950,000 second-feet (27,000 m³/sec), and also that these were the only floods since 1745 with flows greater than 600,000 second-feet (17,000 m³/sec). Min. no flow several days in June and July 1953 and on July 24, 1956.

Average Flow in Second-Feet (Cubic Meters per Second)**

Daily:	Max. 115,000 (3,270)	June 30, 1971	Min. 247 (7.00)	July 2, 1972
Monthly:	Max. 20,400 (579)	Sept. 1974	Min. 498 (14.1)	June 1969
Yearly:	Max. 5,370 (152)	1974	Min. 1,350 (38.3)	1972

Mean Daily Discharge in Second-Feet 1984 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1,990	840	2,150	3,490	505	1,130	2,580	3,390	3,960	1,740	918	756
2	2,000	1,060	1,810	3,850	742	1,010	2,240	3,360	3,920	1,730	943	696
3	2,130	2,150	1,800	3,850	671	869	2,170	3,340	3,450	1,450	890	724
4	2,200	2,240	1,840	3,880	636	756	2,140	3,340	4,130	1,360	876	749
5	2,310	2,230	1,860	4,770	6,290	710	2,480	3,340	3,480	1,310	826	735
6	2,260	2,220	1,890	4,660	10,100	780	3,090	3,320	3,280	1,310	855	699
7	2,060	2,210	1,850	5,050	11,400	618	3,320	3,300	3,190	1,350	855	735
8	2,080	2,200	1,830	7,310	11,400	1,390	3,360	3,230	3,220	1,370	759	851
9	2,210	2,170	1,900	7,420	9,430	1,760	3,410	3,230	3,250	1,310	770	1,310
10	2,250	2,170	1,890	7,350	6,850	1,700	3,450	3,250	3,250	1,190	749	1,480
11	2,190	2,220	1,860	7,770	6,670	1,650	3,430	3,190	2,900	3,780	689	1,450
12	2,010	2,250	1,890	8,970	7,490	1,690	3,430	3,220	2,800	10,900	678	1,270
13	1,440	2,260	1,950	9,040	8,400	1,640	3,450	3,310	2,870	16,800	724	1,240
14	1,130	2,260	1,990	8,330	8,620	1,750	3,340	3,410	2,880	7,060	724	1,240
15	1,100	2,210	1,950	5,690	8,760	1,710	3,340	3,320	2,890	8,760	689	1,300
16	1,070	2,120	1,910	2,780	8,550	1,710	3,340	2,700	2,870	5,190	689	1,300
17	1,030	1,450	1,940	1,850	9,040	1,690	3,320	2,290	2,880	3,020	713	1,270
18	1,030	1,010	2,210	1,700	10,000	1,670	3,320	2,430	2,500	2,080	699	1,330
19	1,010	883	2,460	1,450	9,430	1,700	3,300	2,440	2,360	1,800	699	1,620
20	978	976	2,410	1,120	7,840	1,650	3,320	2,520	2,270	1,600	689	1,690
21	978	833	2,420	1,000	7,700	1,570	3,320	2,550	1,940	1,510	713	1,670
22	964	865	2,420	883	7,350	1,580	3,380	1,960	1,480	1,450	699	1,670
23	911	890	2,440	735	6,960	1,630	3,430	2,420	1,350	1,450	699	1,650
24	883	862	2,440	607	4,950	1,630	3,530	2,480	1,310	1,390	699	1,690
25	922	1,020	2,580	586	2,420	1,650	3,530	3,190	1,330	1,340	713	1,710
26	911	1,890	2,670	533	1,700	1,610	3,600	3,600	1,320	1,330	735	1,750
27	897	1,950	2,660	487	1,510	1,550	4,170	3,600	1,300	1,300	759	1,750
28	869	1,970	2,660	424	1,330	1,520	4,450	3,570	1,290	1,360	805	1,770
29	826	1,870	2,560	438	1,160	1,650	3,640	3,670	1,510	1,330	770	1,790
30	805	2,430	2,430	487	1,010	2,070	3,450	3,990	2,060	1,300	749	1,830
31	862	2,440	2,440	1,010	1,010	1,010	3,450	3,960	2,060	1,080	749	2,740
Sum	44,306	49,179	67,100	106,510	179,424	44,043	101,780	96,920	77,240	89,980	22,775	42,465

Month	Current Year 1984						Period 1968-1984				
	Extreme Gage Feet		Extreme Second-Feet			Average Second-Feet	Total Acre-Feet	Acre-Feet			
	High	Low	Day	High	Day			Low	Average	Maximum	Minimum
Jan.	3.51	1.90	15	2,410	130	795	1,430	87,942	118,547	212,980	49,774
Feb.	3.41	1.94	114	2,300	1	816	1,700	97,559	139,536	450,602	39,225
Mar.	4.07	2.99	28	2,980	13	1,760	2,160	133,044	147,324	395,686	37,096
Apr.	7.94	1.38	13	9,150	128	413	3,570	211,243	136,495	360,566	35,107
May	9.78	1.44	18	12,700	1	463	5,790	355,879	245,013	662,839	89,917
June	3.61	1.64	30	2,420	7	600	1,470	87,326	262,630	695,494	29,685
July	5.28	3.31	128	4,660	4	2,100	3,280	201,913	219,918	838,520	32,270
Aug.	5.02	2.85	30	4,270	22	1,630	3,130	192,240	221,702	794,314	65,681
Sept.	5.51	2.53	4	4,980	127	1,290	2,570	153,210	270,058	1,216,757	94,988
Oct.	15.52	2.17	13	26,400	31	985	2,900	179,496	272,066	956,960	56,155
Nov.	2.46	1.71	2	1,240	11	653	759	45,172	151,972	586,280	45,172
Dec.	4.33	1.74	31	3,460	12	678	1,370	84,195	118,126	307,569	51,316
Yearly	15.52	1.38		26,400		413	2,520	1,828,219	2,264,387	3,891,074	980,740
	Meters		Cubic Meters per Second				Thousands of Cubic Meters				
	4.73	0.42		748		11.7	71.3	2,255,083	2,793,092	4,799,588	1,209,729

** Period 1968-1984

* Discharge measurement made on this day

! And other days

RIO SALADO NEAR LAS TORTILLAS, TAMAULIPAS

DESCRIPTION: Cableway, control weir with notch opening of 2,500 second-foot (72 m³/sec) capacity, gravity well, and water-stage recorder located on the right bank at latitude 26°50'10", longitude 99°33'50", 2.0 river miles (3 km) downstream from the confluence of Rio Sabinas with Rio Salado, 6 miles (10 km) southeast of the town of Las Tortillas, Tamaulipas, and 24.8 river miles (39.9 km) from the confluence with the Rio Grande. This stream enters the Rio Grande at river mile 299.5 (482.0 km), 24.7 river miles (39.8 km) upstream from Falcon Dam. The zero of the gage is 325.72 feet (99.28 m) above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 15 discharge measurements during the year, 11 by the Mexican Section and 4 by the United States Section of the Commission, a stable rating curve up to 2,500 second-foot (72 m³/sec), and a continuous record of gage heights. Computations by shifting control methods for flows greater than 2,500 second-foot (72 m³/sec). Records available: September 9, 1953 through 1984. Records are also available for a station at old Cd. Guerrero, 21.7 miles (35 km) downstream, from 1900 through 1913 and 1923 through September 8, 1953.

REMARKS: Reservoirs and irrigation diversions modify the flow at this station.
EXTREME FLOWS FROM RECORDS: Momentary: Max. 65,000 second-foot (1,840 m³/sec) on September 16, 1971 with a gage height of 40.39 feet (12.31 m). Min. frequently no flow. The maximum discharge was measured at the highway bridge 13.0 river miles (20.9 km) downstream from the station. Extreme flow data for the Rio Salado at Cd. Guerrero prior to September 8, 1953 may be found in previous bulletins.

Average Flow in Second-Foot (Cubic Meters per Second)**

Daily:	Max. 62,900 (1,780)	Sept. 16, 1971	Min. 0	Frequently
Monthly:	Max. 13,600 (384)	Sept. 1971	Min. 0	Frequently
Yearly:	Max. 3,310 (93.6)	1971	Min. 56.8 (1.61)	1956

Mean Daily Discharge in Second-Foot 1984 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	60.0	31.1	11.7	8.5	56.5	650 *	6.4	* 51.2	3.5	1,390	48.0	0
2	63.6	114	* 23.3	5.6	* 56.5	236	6.4	31.1	3.5	392	48.0	0
3	63.6	101	25.4	26.5	54.4	182	6.4	12.0	3.5	176 *	48.0	0
4	60.0	30.9	13.1	27.9	49.4	149	6.4	9.9	254 *	130	48.0	0
5	50.7	72.7	12.0	26.1	41.0	133	6.4	7.1	597	101	48.0	3.5
6	* 72.7	77.0	19.4	20.8	35.3	126	6.4	7.1	283	84.8	50.1	9.2
7	68.2	* 80.9	35.7	22.5	33.2	182	6.4	7.1	126	72.7	* 48.0	5.3
8	54.4	89.0	36.7	20.5	42.7	214	6.4	7.1	88.3	68.2	48.0	0
9	43.8	34.8	30.0	15.9	97.8	126	6.4	7.1	63.6	56.5	43.8	0
10	41.7	77.0	22.6	36.0	131	97.1	6.4	7.1	43.8	54.4	39.6	0
11	74.9	68.2	20.5	37.4	92.5	94.8	6.4	7.1	22.6	57.9	35.3	0
12	56.5	63.6	26.5	33.2	50.5	68.2	6.4	7.1	9.9	321	37.4	0
13	41.7	60.0	62.2	31.1	43.8	60.0	7.1	6.4	8.5	413	35.3	0
14	31.1	55.1	52.3	26.8	41.7	56.5	11.3	7.1	8.5	301	26.8	0
15	30.4	48.0	38.1	34.3	37.4	54.4	39.6	7.1	8.5	175	26.8	0
16	18.4	* 40.3	28.6	50.1	61.8	52.3	71.0	7.1	7.8	147	26.8	0
17	13.4	35.3	19.8	48.0	164	45.9	26.8	6.4	7.8	109	26.8	0
18	12.7	31.1	14.1	48.0	4,130	43.8	9.9	6.4	7.8	105	26.8	0
19	12.0	20.5	18.7	46.6	6,750	41.7	7.1	6.4	7.1	101	26.8	0
20	11.3	13.4	16.5	50.1	7,130	43.8	7.1	6.4	6.4	93.2	26.8	0
21	12.7	11.3	11.7	48.0	1,920	41.7	7.1	6.4	6.4	93.2	14.1	0
22	14.1	9.9	9.9	45.9	597 *	41.7	7.1	5.6	6.4	89.0	10.6	0
23	20.5	8.5	10.2	48.0	330	37.4	7.1	5.6	5.6	72.7	10.6	0
24	26.8	8.5	9.2	48.0	316	33.2	7.1	5.6	5.6	63.6	10.6	0
25	37.8	8.5	8.5	43.8	195	31.1	5.7	4.9	4.9	77.0	10.6	0
26	26.8	7.8	8.5	39.2	179	31.1	11.3	4.9	4.9	63.6	10.6	0
27	26.8	7.1	7.8	23.7	141	22.6	123	4.2	4.9	53.6	10.6	0
28	26.8	7.1	9.9	24.7	121	18.4	52.3	4.2	4.9	60.0	3.5	0
29	26.8	7.8	28.6	37.4	113	16.2	79.1	4.2	600	56.5	0	0
30	26.8		22.2	55.1	1,010	11.3	39.6	3.5	3,730	56.5	0	0
31	26.8		13.1		2,020		26.8	3.5		52.3		98.9
Sum		1,320.4		1,029.8		2,931.2		266.9		5,096.7	846.3	116.9
	1,163.8		667.9		26,041.5		622.9		5,994.7			

Month	Extreme Gage Feet		Extreme Second-Foot				Average Second-Foot	Total Acre-Foot	Acre-Foot			
	High	Low	Day	High	Day	Low			Average	Maximum	Minimum	
							High	Low				
Jan.	0.79	0.26	11	89.0	119	11.3	37.4	2,309	10,758	59,812	0	
Feb.	1.67	.16	2	452	127	7.1	45.6	2,619	8,873	66,880	0	
Mar.	.72	.16	13	72.7	126	7.1	21.5	1,325	5,334	29,690	0	
Apr.	.66	.10	30	56.5	2	4.2	34.3	2,043	12,972	202,979	0	
May	7.58	.46	20	8,330	1	6	31.1	840	51,668	30,829	362,733	0
June	2.65	.20	1	1,490	30	8.5	97.8	5,812	30,942	246,821	0	0
July	1.31	.13	29	247	125	5.7	20.1	1,234	32,780	441,541	0	0
Aug.	.66	.07	1	56.5	31	2.8	8.5	529	24,391	210,031	0	0
Sept.	4.20	.10	30	4,490	1	1	2.8	200	11,868	807,616	2,360	0
Oct.	3.38	.62	1	2,770	31	52.3	165	10,119	57,395	550,739	110	0
Nov.	.59	.16	1	52.3	129	0	28.3	1,680	29,831	338,000	0	0
Dec.	1.21	.07	31	214	1	0	3.9	232	176,100	176,100	0	0
Yearly	7.58	0.07		8,330		0	126	91,428	350,110	2,400,553.5	41,238.2	
	Meters		Cubic Meters per Second				Thousands of Cubic Meters					
	2.31	0.02		236		0	3.57	112,773	431,857	2,951,050	50,859	

** Period September 1953-1984

* Discharge measurement made on this day

! And other days

RIO GRANDE BELOW FALCON DAM NEAR FALCON, TEXAS AND NUEVA CD. GUERRERO, TAMAULIPAS

DESCRIPTION: The discharges reported below represent water measured as it leaves Falcon Reservoir through turbine penstocks, bypass valves, spillway gates, and leakage. Falcon Dam, astride the Rio Grande, is located at latitude 26°33'35", longitude 99°10'00", and river mile 274.8 (442.3 km); about 7 miles (11.3 km) southwest of Falcon, Texas, and 86.1 river miles (138.6 km) downstream from the old international highway bridge between Laredo, Texas and Nuevo Laredo, Tamaulipas. A gravity well and water-stage recorder located 2.5 river miles (4.1 km) downstream and a cableway located one mile (1.6 km) farther downstream are used to measure the flow of this station at times when spillway gates are in operation.

RECORDS: Based on daily Simplex meter records of releases through the six turbines, established rating curves for the four hollow-jet bypass valves, estimates of gate leakage, and measurements of flow at the cable during spillgate operations. During 1984 there were 15 discharge measurements made by the United States Section of the Commission. Records available: 1958 through 1934. Records are also available from December 17, 1952 through 1957 for a station at Chapeno, 2.6 miles (4.1 km) downstream, where discharges included arroyo inflow below Falcon Dam, which inflow is eliminated from the records reported below.

REMARKS: Computation of flow was made jointly by the United States and Mexican Sections of the Commission from a consolidation of the basic data gathered by each Section incident to the international operation of Falcon Reservoir.

EXTREME FLOWS FROM RECORDS:** Momentary: Max. 82,600 second-feet (2,340 m³/sec) on September 18, 1971. Min. 1.5 second-foot (0.04 m³/sec) on March 24 and 25, 1957 (at Chapeno gaging station).

Average Flow in Second-Feet (Cubic Meters per Second)**

Daily:	Max. 76,400 (2,150)	Sept. 18, 1971	Min. 1.5 (0.04)	March 24 & 25, 1957
Monthly:	Max. 32,500 (920)	Oct. 1958	Min. 23.5 (0.67)	November 1973
Yearly:	Max. 5,930 (196)	1958	Min. 1,580 (44.7)	1970

Mean Daily Discharge in Second-Feet 1984 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1,399	18.0	712	2,950	13,200 *	3,280	3,290	2,910	2,230	306	235	1,700
2	1,710	18.0	520	3,360	13,600	3,250	3,080	3,270	2,240	314	169	1,780
3	1,946	18.0	1,220	4,060	12,400	4,530	3,060	3,280	2,060	324	118	1,590
4	2,220	18.0	1,220	4,430	13,600 *	5,100	3,260	3,170	999	322	118	1,480
5	2,550	18.0	1,230	4,640	13,300	4,740	2,940	3,220	593	280	76.0	920
6	3,030	18.0	1,240	5,260	13,200	4,010	2,530	3,520	368	428	359	374
7	3,420	18.0	1,410	5,700	12,900	4,490	2,930	3,630	18.0	422	595	366
8	3,780	18.0	1,400	6,040	12,300	5,480	2,940	3,420	18.0	429	973	18.0
9	3,780	18.0	1,120	6,570	11,400	5,560	3,320	3,560	18.0	634	821	1,480
10	3,140	18.0	809	7,130	10,700 *	5,480	3,710	3,630	483	1,120	1,340	18.0
11	3,920	18.0	797	7,950	11,000	5,000	3,620	3,650	523	1,580	827	607
12	4,950	18.0	821	9,340	11,300	4,390	3,100	3,750	414	1,460	816	401
13	6,130	18.0	1,020	10,200 *	12,200	4,040	2,370	3,800	429	1,380	814	624
14	5,470	18.0	1,410	9,850	7,030	3,460	2,340	3,890	856	797	821	419
15	6,410	18.0	1,430	10,300	6,360	3,930	2,350	4,110	613	994	818	770
16	6,010	18.0	1,600	12,700 *	5,810	3,850	2,140	4,830	518	998	1,170	1,050
17	5,780	18.0	1,630	14,300 *	4,600	3,770	2,140	5,350	418	1,010	1,370	1,140
18	4,990	18.0	1,630	13,700 *	1,710	3,400	2,170	5,230	218	1,000	1,380	1,140
19	4,340	154	1,490	13,400	18.0	1,340	2,020	5,190	218	1,020	1,580	1,280
20	4,040	424	1,310	13,800	18.0	1,130	1,770	4,640	457	1,230	1,600	1,040
21	4,270	399	1,330	12,500	596	2,980	1,450	3,580	772	1,230	1,320	1,030
22	3,750	495	1,320	13,700	531	2,730	1,570	3,380	704	1,240	1,200	712
23	3,080	612	1,330	13,400 *	224	2,260	1,560	3,260	692	1,220	815	709
24	3,240	583	1,510	14,400	575	2,300	1,940	2,490	657	1,930	1,050	710
25	1,710	601	1,510	15,900	555	2,300	2,130	1,750	730	1,920	1,300	731
26	18.0	616	1,800	15,400 *	1,280	2,290	2,130	1,750	539	1,320	1,620	732
27	18.0	620	2,020	15,000	1,270	2,640	1,930	1,740	521	1,520	1,520	376
28	18.0	493	2,100	14,000	2,660	2,620	1,900	1,740	463	1,160	1,620	374
29	18.0	318	1,810	13,300	3,700	2,720	1,900	1,940	324	491	1,620	725
30	260	1,850	13,700	3,690	2,910	1,700	2,190	302	18.0	1,620	1,240	840
31	18.0	2,560		3,900		1,880	2,230		126			
Sum		5,639.0		306,890		105,080		104,010		28,223.0		24,914.0
	96,420.0		43,259		205,737.0		75,290		19,705.0		29,838.0	

Month	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet		
	High	Low	High		Low				Average	Maximum	Minimum
			Day		Day						
Jan.			14	6,470	126	18.0	3,110	191,246	214,793	452,369	16,245
Feb.			27	620	1	18.0	194	11,185	159,323	357,384	11,185
Mar.			31	2,560	2		1,400	85,803	134,121	374,182	2,390
Apr.			25	15,900	1	2,950	10,200	508,707	281,475	608,707	19,570
May			1	13,900	119	18.0	6,640	403,073	362,602	715,237	21,574
June			9	5,550	20	1,100	3,540	210,407	256,107	672,976	22,987
July			10	3,710	21	1,460	2,430	149,336	148,521	391,071	12,839
Aug.			17	5,360	127	1,740	3,360	206,301	223,033	1,478,578	25,900
Sept.			2	2,240	1	18.0	657	39,034	175,423	1,030,871	1,428
Oct.			24	1,930	30	18.0	910	55,980	231,053	1,937,000	1,932
Nov.			126	1,620	5	76.0	995	59,183	114,770	1,128,000	1,400
Dec.			2	1,780	1	18.0	894	49,416	110,812	465,000	3,761
Yearly				15,900		18.0	2,950	2,074,721	2,402,033	5,016,800	1,143,895
	Meters		Cubic Meters per Second				Thousands of Cubic Meters				
			450		0.51	81.0		2,559,127	2,952,850	6,188,223	1,410,385

** Period 1954-1984

* Discharge measurement made on this day

∅ Mean daily

Values prior to 1958 are Chapeno discharge less arroyo flow

! And other days

RIO ALAMO AT CD. MIER, TAMAULIPAS

DESCRIPTION: Cableway, reinforced concrete weir of 177 second-foot (5 m³/sec) capacity, gravity well, and water-stage recorder located on the right bank at a point called "El Paso del Cantaro," latitude 26°27'00", longitude 99°09'05", about 0.5 mile (1 km) north of Cd. Mier, Tamaulipas, and 5.0 river miles (8 km) from the confluence with the Rio Grande. This stream enters the Rio Grande at river mile 262.4 (422.3 km), 12.4 river miles (20.0 km) downstream from Falcon Dam. The weir is located about 300 feet (91 m) downstream from the recorder. The zero of the gage is at mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 9 discharge measurements made at high flows during the year, 7 by the Mexican Section and 2 by the United States Section of the Commission, the weir discharge table at low flows, and a continuous record of gage heights. High flow computations by shifting control methods. Records available: July 1923 through 1984.

REMARKS: Small reservoirs and irrigation diversions modify the flow of this spring-fed stream at this station. On June 11, 1952, the zero of the gage was raised 1.31 feet (0.40 m) to make it coincide with the weir crest elevation. Prior to January 1, 1969, the zero of the gage was 183.35 feet (57.41 m) above mean sea level, U. S. C. & G. S. datum.

EXTREME FLOWS FROM RECORDS: Momentary: Max. 144,800 second-feet (4,100 m³/sec) on September 11, 1948 with a gage height of 33.56 feet (10.23 m). Min. periods of no flow have occurred at times during all years of record except 1934, 1935, 1963, 1972, 1974, 1976, 1977, 1979, and 1981.

Average Flow in Second-Foot (Cubic Meters per Second)**

Daily:	Max.	87,230 (2,470)	Sept. 11, 1948	Min.	0	Frequently
Monthly:	Max.	7,310 (207)	Sept. 1967	Min.	0	Frequently
Yearly:	Max.	837 (23.7)	1967	Min.	16.4 (0.47)	1929

Mean Daily Discharge in Second-Foot 1984 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	273	0	0	0	0	47.3	0	0	112	0	0.4
2	0	69.2	0	0	0	0	427 *	0	0	40.3	5.3	.7
3	0	22.6	0	0	0	0	114	0	80.2	22.2	1.4	1.1
4	0	11.7	0	0	0	0	32.1	0	713 *	14.5	.7	1.1
5	0	7.8	0	0	0	1,950 *	12.0	0	893 *	10.6	.7	.4
6	0	5.3	0	0	0	512 *	6.0	0	279 *	8.1	.7	0
7	1.4	3.9	0	0	0	39.6	3.5	0	117	6.4	.7	.7
8	4.2	3.2	0	0	350	15.9	1.8	0	115	6.0	.7	.7
9	3.9	2.5	0	0	21.9	9.2	.7	0	79.1	5.3	.7	.7
10	1.4	1.8	0	0	4.9	5.0	0	215	61.4	4.6	.4	.7
11	1.1	1.8	0	0	1.1	3.9	0	48.7	53.0	4.6	0	.7
12	1.1	1.4	0	0	0	3.2	4.2	12.4	44.8	4.9	0	.7
13	1.1	1.1	0	0	0	13.1	154	4.9	41.7	4.2	0	.7
14	1.1	1.1	0	0	3.5	7.8	46.6	2.1	40.3	4.2	.4	.4
15	1.1	1.1	0	0	1.1	.4	21.5	1.1	39.9	2.8	.7	.4
16	1.1	1.1	0	0	2.1	2.1	15.9	0	61.4	2.1	.7	.4
17	1.1	1.1	0	0	1,440	1.8	33.2	0	44.5	1.1	.7	.7
18	1.1	1.1	0	0	191	.7	21.5	0	28.6	1.1	.4	.7
19	1.1	1.1	0	0	41.0	.4	11.3	0	21.5	1.1	0	.7
20	1.1	1.1	0	0	15.9	29.0	2.5	0	119	.7	.4	0
21	1.1	.7	0	0	7.8	8.5	.7	0	5.0	.4	.7	0
22	1.1	.7	0	0	10.6	8.9	0	0	2.1	0	.7	.7
23	1.1	.7	0	0	84.4	4.6	0	0	2.1	0	.7	.7
24	4.2	.7	0	0	172	2.5	0	0	.7	0	.7	.7
25	32.1	.7	0	0	14.8	1.4	0	0	0	0	.7	.7
26	193	0	0	0	5.6	.4	0	0	0	0	.7	.7
27	64.3	0	0	0	2.8	0	0	0	13.8	0	.4	.4
28	19.1	0	0	0	1.8	0	0	0	16.2	0	0	0
29	8.1	0	0	0	1.1	0	0	0	2,200	0	0	0
30	6.0	0	0	0	.4	203	0	0	69.6	0	0	0
31	20.1	0	0	0	0	0	0	0	0	0	0	0
Sum	372.1	416.5	0	0	2,373.8	2,824.3	955.8	284.2	5,142.9	257.2	19.2	15.8

Month	Extreme Gage Feet		Current Year 1984				Average Second-Foot	Total Acre-Foot	Period 1924-1934			
	High	Low	Extreme Second-Foot		Day	Day			Acre-Foot			
			High	Low			Day	Day	Average	Maximum	Minimum	
Jan.	189.73		26	219	1	1	12.0	738	3,243	34,920	0	0
Feb.	189.99		1	360	126	0	14.5	824	3,256	53,474	0	0
Mar.				0	0	0	0	0	2,421	19,830	0	0
Apr.				0	0	0	0	0	5,509	36,210	0	0
May	192.91		17	3,990	1	1	76.6	4,718	11,892	137,000	0	0
June	192.39		5	3,290	1	1	93.9	5,600	12,170	83,240	0	0
July	190.58		2	833	122	0	30.7	1,895	7,461	62,246	0	0
Aug.	190.19		10	498	1	1	9.2	564	15,038	205,700	0	0
Sept.	193.50		29	4,910	1	1	172	10,210	37,894	434,387	135	0
Oct.	189.73		1	219	122	0	8.5	511	17,476	193,700	0	0
Nov.	188.58		2	12.0	1	0	.7	38.1	4,079	25,165	0	0
Dec.	188.39		3	1.1	1	6	.4	30.8	3,372	15,982	0	0
Yearly	193.50			4,910		0	34.6	25,128.9	123,811	605,678.4	11,898.7	
	Meters		Cubic Meters per Second				Thousands of Cubic Meters					
	58.93			139		0	0.93	30,997	152,720	747,096	14,636	

** Period 1924-1984 * Discharge measurement made on this day † And other days

**CONTRIBUTIONS TO THE RIO GRANDE FROM
THE LOWER RIO SAN JUAN IRRIGATION DISTRICT
FALCON DAM TO RIO GRANDE CITY**

DESCRIPTION: The Lower Rio San Juan Irrigation District in Mexico lies along the Rio Grande between Cd. Miguel Aleman and Rio Bravo, Tamaulipas and is irrigated with water impounded by Marte R. Gomez Dam situated on the Rio San Juan 12.4 river miles (20 km) upstream from the confluence with the Rio Grande. The Rio San Juan enters the Rio Grande at river mile 238.7 (384.1 km). Drain water from this irrigation district enters the Rio Grande between Falcon Dam and the Rio Grande City Gaging Station through the Rio San Juan channel, Rancherias Drain, and Los Fresnos Drain; and between this station and Anzalduas Dam through Puertecitos, Los Indios, Huizache, and Morillo Drains. Only the portion of water reaching the Rio Grande via drains located upstream from the Rio Grande City Gaging Station is shown below. Drain water reaching the Rio Grande through the Rio San Juan channel is included in the Rio San Juan tabulation. The portion of drain water from this irrigation district reaching the Rio Grande via channels located downstream from the Rio Grande City Gaging Station is shown on page 66 in this bulletin.

RECORDS: Water entering the Rio Grande through the Rio San Juan Channel, composed of spills and leakage from Marte R. Gomez Dam, storm inflow and drainage below the dam, is measured at the Rio San Juan Gaging Station at Camargo, Tamaulipas, 3.1 river miles (5 km) upstream from the confluence with the Rio Grande. The discharge through Rancherias Drain was determined by prorating between 29 current meter measurements made during the year. There were no drainage flows through Los Fresnos Drain in 1984. All storm water measured at these two drains was deducted and is not included in the tabulation below. Records available: 1953 through 1984. Records prior to 1976 include Rio San Juan flow.

REMARKS: In 1984 there were 163,976 irrigable acres (66,359 ha) in the Lower Rio San Juan Irrigation District.

Mean Daily Discharge in Second-Feet 1984 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	2.1	7.4	2.5	2.1	11.3	24.4	4.9	3.9	3.2	2.5	1.4	0.4
2	2.1	7.1	2.5	2.1	11.3	23.7	4.6	3.5	3.5	2.8	1.4	.4
3	2.1	7.1	2.5	2.1	11.3	22.6	4.2	3.5	3.5	2.8	1.4	.7
4	2.5	6.7	2.1	2.1	12.0	21.5	3.9	3.5	3.5	2.8	1.1	.7
5	2.5	6.7	2.1	2.5	13.1	20.8	3.9	3.2	3.5	2.5	1.1	.7
6	2.8	6.7	2.1	2.5	13.8	19.8	3.9	3.2	3.5	2.5	1.1	.7
7	2.8	6.4	2.1	2.5	14.5	18.7	3.9	3.2	3.5	2.5	1.1	.7
8	3.2	6.4	2.1	2.8	15.2	18.0	3.9	2.8	3.2	2.5	1.1	.7
9	3.2	6.0	2.1	2.8	16.2	17.0	3.9	2.8	3.2	2.1	1.1	.7
10	3.5	6.0	2.1	2.8	17.0	16.2	3.9	2.8	3.2	2.1	.7	.7
11	3.5	5.7	2.1	3.5	17.7	15.2	3.5	2.5	2.8	2.1	.7	.7
12	3.9	5.7	2.5	3.9	18.4	14.1	3.5	2.5	2.8	1.8	.7	.7
13	3.9	5.7	2.5	4.2	19.4	13.4	3.5	2.5	2.8	1.8	.7	1.1
14	4.2	5.3	2.5	4.9	20.1	12.4	3.5	2.1	2.8	1.8	.7	1.1
15	4.2	5.3	2.5	5.6	20.8	11.3	3.5	2.1	2.8	1.8	.7	1.1
16	4.6	4.9	2.5	6.0	21.5	10.6	3.5	2.1	2.8	1.4	.7	1.1
17	4.9	4.9	2.5	6.4	22.6	9.5	3.5	2.1	2.5	1.4	.7	1.1
18	4.9	4.6	2.5	7.1	23.3	8.5	3.5	2.5	2.5	1.4	.7	1.1
19	5.3	4.6	2.8	7.8	24.0	7.8	3.5	2.5	2.5	1.4	.7	1.1
20	5.3	4.2	2.8	8.1	24.7	6.7	3.5	2.5	2.5	1.4	.7	1.1
21	5.7	4.2	2.8	8.5	25.8	6.7	3.5	2.5	2.5	1.4	.4	1.1
22	5.7	3.9	2.8	9.2	26.5	6.4	3.5	2.5	2.5	1.4	.4	1.1
23	6.0	3.5	2.8	9.9	26.5	5.4	3.5	2.8	2.5	1.4	.4	1.1
24	6.0	3.5	2.5	10.2	26.1	6.4	3.5	2.8	2.1	1.4	.4	1.1
25	6.4	3.2	2.5	10.6	26.1	6.0	3.9	2.8	2.1	1.4	.4	1.1
26	6.4	3.2	2.1	11.3	26.1	6.0	3.9	2.8	2.1	1.4	.4	1.1
27	6.7	2.8	2.1	11.3	25.8	5.6	3.9	3.2	2.1	1.4	.4	1.1
28	6.7	2.8	1.8	11.3	25.8	5.6	3.9	3.2	2.1	1.4	.4	1.1
29	7.1	2.5	1.8	11.3	25.8	5.3	3.9	3.2	2.5	1.4	.4	1.1
30	7.1	1.8	1.8	11.3	25.4	4.9	3.9	3.2	2.5	1.4	.4	.7
31	7.4	2.1	2.1	11.3	25.4	4.9	3.9	3.2	2.5	1.4	.4	.7
Sum	142.7	147.0	72.5	186.7	633.5	371.5	117.3	88.0	83.6	56.8	22.8	27.9
Current Year 1984										Period 1954-1984		
Month	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet			
	High	Low	Day	High	Day	Low			Average	Maximum	Minimum	
Jan.			31	7.4	1	2.1	4.6	283	177	556	0	
Feb.			1	7.4	29	2.5	4.9	291	301	938	0	
Mar.			119	2.8	128	1.8	2.5	143	241	771	25.9	
Apr.			126	11.3	1	2.1	6.4	370	290	708	19.5	
May			122	26.5	1	11.3	20.5	1,257	605	1,454	61.6	
June			1	24.4	30	4.9	12.4	737	520	1,257	55.9	
July			1	4.9	111	3.5	3.9	233	255	525	32.4	
Aug.			1	3.9	14	2.1	2.8	174	203	443	25.9	
Sept.			1	2	3.5	124	2.1	2.8	166	211	697	15.4
Oct.			1	2	2.8	116	1.4	1.8	113	191	797	19.5
Nov.			1	1	1.4	122	.4	.7	43.8	180	541	6.5
Dec.			113	1.1	1	.4	.7	54.3	156	495	29.2	
Yearly				26.5		0.4	5.3	3,865.1	3,331	6,785	490	
	Meters		Cubic Meters per Second				Thousands of Cubic Meters					
				0.75		0.01	0.15	4,769	4,109	8,370	605	
	* Discharge measurement made on this day						Ø Mean daily		! And other days			

DIVERSIONS FROM THE RIO GRANDE UNITED STATES SIDE, FALCON DAM TO RIO GRANDE CITY

Beginning June 1971, the Texas Water Rights Commission, now the Texas Department of Water Resources, assumed control of the United States portion of the water in Falcon Reservoir and in the Rio Grande below Falcon Dam, the disposition of such waters being made by its Rio Grande Watermaster. Previous to that, since June 1956, such waters had been under the jurisdiction of the 93rd District Court of Texas administered by its Special Water Master.

During 1984, 5,221 irrigable acres (2,517 ha) and several towns and rural homes were allotted Rio Grande water in the river reach between Falcon Dam and the Rio Grande City gaging station. Such irrigable area was 0.9% of the total irrigable acres (ha) below Falcon Dam allotted Rio Grande water.

The total diversion during 1984 in this river reach was 11,920 acre-feet (14,703,000 m³), or 1.1% of the total water diverted from the Rio Grande below Falcon Dam. All records of diversions in this river reach, which were determined by means of flow meters, were furnished by the Rio Grande Watermaster. More than one crop per year is often grown on parts of this land.

Records prior to 1976 were published under the title "Diversions from the Rio Grande, United States Side-Falcon Dam to Fort Ringgold."

EXTREME FLOWS FROM RECORDS:

		Average Flow in Second-Feet (Cubic Meters per Second)				
Daily:	Max. 124 (3.51)	April 5-9, 1984	Min. 0	Occasionally		
Monthly:	Max. 55.7 (1.58)	April 1984	Min. 2.2 (0.06)	March 1957		
Yearly:	Max. 20.3 (0.57)	1960	Min. 5.9 (0.20)	1968		

Mean Daily Discharge in Second-Feet 1984 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	7.2	4.4	27.4	122	39.9	42.9	19.1	17.4	19.1	4.7	2.9	50.3
2	4.7	4.6	39.4	120	42.1	32.0	14.3	18.0	8.3	6.2	2.9	9.5
3	4.7	4.6	23.8	120	45.8	29.3	17.7	18.0	8.7	5.6	2.9	9.7
4	5.3	5.0	18.3	120	46.9	28.5	12.3	19.9	8.7	5.7	2.9	9.0
5	9.9	3.3	18.8	121	41.2	20.9	10.4	11.8	8.9	11.2	3.1	8.3
6	11.7	4.2	21.9	124	29.1	20.0	12.3	13.1	8.7	13.6	2.8	8.3
7	11.5	4.0	20.5	124	32.8	20.0	15.3	11.2	10.1	13.0	2.0	8.3
8	9.0	5.6	17.1	124	32.9	20.0	11.2	10.5	8.8	22.4	3.0	8.4
9	13.7	4.6	21.6	124	33.8	25.2	15.3	11.6	5.1	19.1	5.3	6.4
10	11.2	4.0	16.9	122	30.2	19.4	16.1	12.2	9.4	9.1	7.7	6.5
11	13.9	3.0	13.5	121	44.5	22.2	18.5	12.9	9.5	13.7	8.0	7.5
12	12.4	6.6	19.1	29.5	35.6	22.0	18.2	10.1	11.2	17.5	8.4	8.4
13	15.2	5.2	18.0	30.2	39.5	19.8	14.2	14.0	7.6	17.2	6.0	10.7
14	10.8	5.7	17.2	23.5	25.9	17.8	14.5	15.5	8.0	9.0	6.1	13.3
15	8.6	5.8	17.2	16.3	15.9	19.8	5.3	17.3	3.6	11.4	6.1	18.5
16	13.8	7.3	17.4	24.2	16.5	22.7	11.0	18.9	6.3	24.7	6.0	14.0
17	10.0	8.3	15.8	23.5	14.1	20.5	19.1	15.9	5.0	27.1	7.3	16.4
18	7.2	7.9	11.3	17.9	12.0	21.0	19.2	16.9	8.7	20.0	4.7	16.6
19	8.5	4.6	11.4	20.4	16.4	22.9	18.0	7.1	10.7	25.4	5.3	19.7
20	7.6	4.9	13.8	15.5	13.6	22.9	17.2	8.8	14.7	20.9	3.6	20.9
21	7.3	5.0	18.1	15.2	15.5	20.9	21.9	5.2	17.0	14.8	4.0	21.1
22	6.2	7.5	16.9	14.3	13.5	20.7	10.7	10.4	14.7	17.4	4.0	21.7
23	5.7	9.6	19.3	14.7	14.1	24.1	15.5	9.4	12.7	12.8	4.0	19.0
24	3.4	9.6	16.7	14.4	18.7	13.7	12.7	11.2	13.6	13.6	3.2	17.1
25	2.8	5.5	15.6	14.6	17.0	20.6	15.0	10.9	17.2	10.7	.4	12.1
26	2.8	4.0	14.9	16.0	14.4	20.7	15.5	2.2	15.6	10.7	.4	10.2
27	2.6	4.0	12.9	15.8	9.3	20.7	14.7	2.9	18.5	4.1	1.5	10.2
28	1.5	4.0	9.4	14.5	9.3	19.2	7.0	3.4	19.7	.1	.4	8.0
29	1.1	4.0	9.2	4.2	9.0	19.2	3.5	1.9	10.6	.1	.4	6.3
30	1.1		9.2	4.2	9.0	18.7	3.5	1.9	4.5	.1	.4	3.6
31	.9		7.8		9.0		2.2	1.9		.1		3.6
Sum		164.4		1,670.9		673.3		343.9		383.0		403.6
	232.9		535.4		738.6		415.4		331.5		115.7	
Current Year 1984									Period 1957-1984			
Month	Average Rainfall Inches**		Extreme Second-Feet				Average Second- Feet	Total Acre-Feet	Acre-Feet			
	1957-1984	1984	Day	High	Day	Low		Average	Maximum	Minimum		
Jan.	1.10	3.78	13	15.2	31	0.9	7.5	452	581	1,482	159	
Feb.	1.17	.61	123	9.6	5	3.8	5.7	326	780	1,732	223	
Mar.	.55	.02	2	33.4	31	7.8	17.3	1,054	1,055	1,845	155	
Apr.	1.33	.01	1	124	129	4.2	55.7	3,314	1,217	3,314	357	
May	2.55	2.83	4	46.9	129	9.0	23.8	1,465	1,003	2,524	211	
June	2.55	2.09	1	42.9	14	17.3	22.4	1,335	952	2,610	209	
July	1.43	1.05	21	21.9	31	2.2	13.4	824	722	1,620	278	
Aug.	2.31	.33	4	19.9	129	1.9	11.1	632	679	1,252	278	
Sept.	4.66	3.78	28	13.7	30	4.5	11.0	553	544	1,230	178	
Oct.	2.18	.75	17	27.1	128	.1	12.4	760	720	1,549	131	
Nov.	1.07	.79	12	8.4	125	.4	3.9	229	550	1,170	211	
Dec.	.81	.55	1	59.3	130	3.6	13.0	301	583	1,530	145	
Yearly	21.72	16.54		124		0.1	15.4	11,920	3,497	14,754	4,989	
	Millimeters		Cubic Meters per Second				Thousands of Cubic Meters					
	552	423		3,51		0.003	0.45	14,703	11,714	18,199	6,154	

** United States side - average of several stations in the reach Ø Mean daily † And other days

RIO GRANDE AT RIO GRANDE CITY, TEXAS NEAR CAMARGO, TAMAULIPAS

DESCRIPTION: Cableway, bubbler gage, gravity well, water-stage recorders (graphic and digital), and digital transmitter located on the left bank at Fort Ringgold, latitude 26°22'00", longitude 98°48'10", and river mile 235.0 (378.1 km); about 1 mile (1.6 km) downstream from Rio Grande City, Texas, and 3.7 river miles (6.0 km) downstream from Rio San Juan. The zero of the gage is 100.00 feet (30.48 m) above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 35 discharge measurements during the year, and a continuous record of gage heights. Computations by shifting control methods. Records available: January 1955 through 1984. Records prior to 1975 were published under the title "Rio Grande at Fort Ringgold, Rio Grande City, Texas." Records composed of the addition of discharges of the Rio Grande at Roma, Texas and the Rio San Juan at Santa Rosalia, Tamaulipas are available for May, June, and October 1911; September 1916; September and October 1917; October 1918; September and October 1919; August and September 1920; June 1922; September 1923; and 1924 through 1931. Records are also available for the station "Rio Grande near Rio Grande City," 3.0 miles (4.8 km) downstream, for 1932 through 1954.

REMARKS: Reservoirs, diversions, and drainage returns modify the river flow at this station. Except for tributary inflows and intervening diversions below Falcon Dam, flow at this station is controlled largely by releases from Falcon Reservoir, 39.9 river miles (64.1 km) upstream. The transmitter relays gage height data via radio to the Mercedes Office of the Commission, where it is recorded automatically, and to the Anzalduas Dam control room for visual readout.

EXTREME FLOWS FROM RECORDS: Momentary: Max. 220,000 second-feet (6,230 m³/sec) on September 22 and 23, 1967 with a gage height of 61.40 feet (18.71 m). Min. no flow occurred several days in June and July 1953.

Average Flow in Second-Feet (Cubic Meters per Second)**

Daily:	Max. 207,000 (5,860)	Sept. 23, 1967	Min. 14.6 (0.41)	April 13, 1957
Monthly:	Max. 49,600 (1,400)	Oct. 1958	Min. 235 (6.66)	March 1957
Yearly:	Max. 9,140 (259)	1958	Min. 1,750 (49.6)	1970

Mean Daily Discharge in Second-Feet 1984 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1,610	481	742	2,470	12,300	3,550 *	2,810	1,920 *	2,080	733	176	1,620
2	1,590	475	1,260 *	2,870	13,600	2,970	3,120	2,760	2,070	501	298 *	1,670
3	1,990	387 *	1,220	3,300	11,400 *	3,170	3,100	3,160	2,050	355 *	500	1,710
4	2,100	408	1,650	3,880	13,900	4,710	2,860	3,220	2,100 *	465	252	1,620
5	2,310 *	533	1,600	4,340	12,200	6,970	2,920 *	3,150	1,650	488	118	1,430 *
6	2,600	654	1,700	4,930	12,800	5,110 *	2,550	3,150	1,060	484	113	1,000
7	3,010	756 *	1,420 *	5,710	12,900	3,740	2,170	3,500	612	533	116	538
8	3,400	822	1,490	6,090	12,400 *	5,230	2,570	3,500	406	624	580	505
9	3,500	882	1,480	6,180	12,300	6,320	2,650	3,360	247	718	867	422
10	3,490	941	1,210	7,640	11,000	4,960	3,140	3,490	191	831	972	94.0
11	3,100 *	957	996	7,670	11,200	5,540	3,500	3,520	251	1,190	1,260	100
12	3,760	974	986	8,670	11,100	4,560 *	3,420	3,450	420	1,650	943	298
13	6,190	955	1,020	9,760 *	12,100	3,910	3,010	3,470	634	1,670	907	529
14	5,360	931 *	1,140 *	9,790	11,500	3,680	2,350	3,470	349	1,600	918	536
15	6,420	897	1,620	9,510	5,980 *	3,460	2,260	3,560	829	1,310	932	646
16	6,490	891	1,580	10,800	7,000	3,900	2,270	3,910	643	1,150 *	925	738
17	5,560 *	891	1,740	11,600	5,920	3,880	2,050 *	5,690	644	1,360	1,260	883
18	5,560	853	1,760	12,600	5,080	3,680	2,050	4,210	564	1,340	1,400	984 *
19	4,910	810	1,740	12,600	2,130	3,150	2,090	4,290	358 *	1,320	1,400	938
20	3,710	798	1,600 *	13,400 *	595	1,370	2,000	4,790	297	1,300	1,580	1,120
21	4,080	1,020	1,350	12,400	375	1,280	1,730	3,870 *	373	1,430	1,630	991
22	4,130	968 *	1,360	13,200	546 *	2,940	1,430	2,300	736	1,430	1,370	1,000
23	3,660	1,070	1,330	13,100	820	2,610	1,520	2,900	712	1,420	1,270	829
24	3,250	1,310	1,330	13,000	346	2,190	1,690	2,730	572	1,410	1,040	875
25	3,520	1,090	1,510	14,700	641	2,200	1,910	2,120	650	1,950	1,180	899
26	1,850 *	1,150	1,510	14,300	488	2,160	2,080	1,430	721	1,960	1,400	950
27	560	1,350	1,330 *	13,500	1,170	2,140	2,080	1,450	618	1,490	1,580 *	992
28	326	1,070	2,000	13,300	1,130	2,440	1,890	1,450	526	1,560	1,660	868
29	231	825	2,160	12,300	2,780	2,400	1,910	1,420	2,810	1,300	1,650	650
30	173		1,770	13,100	2,930	2,520	1,880	1,630	2,190	847	1,670	1,100
31	213		1,820		3,540		1,710	1,900		487		1,530
Sum	39,663	25,129	45,894	286,710	212,171	106,740	72,720	95,400	27,463	34,906	29,967	28,065.0

Month	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet		
	High	Low	Day	High	Day	Low			Average	Maximum	Minimum
							High	Low			
Jan.	29.57	25.00	13	7,180	130	154	3,210	197,679	221,792	427,991	33,043
Feb.	26.93	25.46	24	1,740	1	287	867	49,343	174,388	376,607	25,500
Mar.	27.74	25.71	29	3,220	1	638	1,480	91,029	139,146	378,000	14,400
Apr.	33.57	26.34	25	15,200	2	1,170	9,550	568,881	280,450	568,681	75,100
May	33.80	25.17	4	15,100	26	273	6,840	420,835	355,729	689,106	36,702
June	29.86	25.77	5	7,790	21	583	3,560	211,716	295,999	658,255	98,620
July	28.92	26.27	12	5,760	7	874	2,350	144,238	186,692	573,798	22,300
Aug.	29.44	26.17	19	6,570	29	759	3,080	199,223	250,153	1,502,678	25,000
Sept.	28.81	25.04	29	5,390	9	180	915	54,472	339,561	2,712,754	42,423
Oct.	27.27	25.17	26	2,530	31	302	1,130	69,235	359,234	3,047,000	30,000
Nov.	27.07	24.99	27	2,200	1	107	999	59,439	152,459	1,442,000	29,274
Dec.	27.20	24.97	3	2,300	10	88.4	995	55,656	130,421	540,000	36,100
Yearly	33.80	24.97		15,200		88.4	2,910	2,112,056	2,886,024	6,619,700	1,269,259
	Meters		Cubic Meters per Second				Thousands of Cubic Meters				
	10.30	7.61		430		2.50	82.4	2,605,179	3,559,853	8,165,400	1,565,631

** Period 1955-1984 * Discharge measurement made on this day ! And other days
1954 values are Rio Grande City less arroyo inflow

CONTRIBUTIONS TO THE RIO GRANDE FROM THE LOWER RIO SAN JUAN IRRIGATION DISTRICT RIO GRANDE CITY TO ANZALDUAS DAM

DESCRIPTION: The Lower Rio San Juan Irrigation District in Mexico lies along the Rio Grande between Cd. Miguel Aleman and Rio Bravo, Tamaulipas and is irrigated with water impounded by Marte R. Gomez Dam situated on the Rio San Juan 12.4 river miles (20 km) upstream from the confluence with the Rio Grande. The Rio San Juan enters the Rio Grande at river mile 238.7 (384.1 km). Drain water from this irrigation district enters the Rio Grande between Falcon Dam and the Rio Grande City Gaging Station through the Rio San Juan channel, Rancherías Drain, and Los Fresnos Drain; and between this station and Anzalduas Dam through Puertecitos, Los Indios, Huizache, and Morillo Drains. Only the portion of drain water from this irrigation district reaching the Rio Grande via drains located downstream from Rio Grande City Gaging Station is shown below. The portion of water reaching the Rio Grande via channels located upstream from the Rio Grande City Gaging Station is shown on page 62 in this bulletin.

RECORDS: Drain water reaching the Rio Grande through Morillo Drain was determined by hourly staff gage readings and the weir discharge table, and through Puertecitos and Los Indios Drains by prorating between frequent current meter measurements. In 1984, 29 and 29 meter measurements were made at Puertecitos and Los Indios Drains, respectively. All storm water measured at these drains was deducted and is not included in the tabulation below. In 1984, 40% of the drain water from this irrigation district reaching the Rio Grande between the Rio Grande City Gaging Station and Anzalduas Dam was contributed by Morillo Drain. Records available: 1953 through 1984.

REMARKS: In 1984 there were 163,976 irrigable acres (66,359 ha) in the Lower Rio San Juan Irrigation District. Since July 9, 1969 some water has been diverted from Morillo Drain directly to the gulf via the Morillo Drain Diversion Canal to reduce the salinity of Rio Grande waters. In 1984, 51,057 acre-feet (62,978,000 m³) were diverted.

Mean Daily Discharge in Second-Feet 1984 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	7.1	72.7	18.0	13.8	135	132	29.0	14.1	19.8	13.8	18.4	9.5
2	7.1	72.0	18.0	14.5	138	133	27.5	14.8	18.4	14.5	18.0	10.9
3	7.1	71.7	18.0	14.8	149	139	25.8	15.5	17.7	14.8	17.7	12.7
4	9.5	70.6	17.3	15.2	132	144	24.7	16.2	16.6	14.5	17.3	14.1
5	12.4	70.3	17.0	15.2	168	155	24.0	17.0	15.9	14.1	17.0	15.5
6	14.5	61.8	17.0	15.5	193	163	23.7	17.7	15.5	13.8	16.6	15.2
7	17.0	80.2	17.0	16.2	180	126	23.0	18.4	14.8	13.4	16.2	14.5
8	19.8	132	16.6	16.2	180	122	22.6	19.1	14.5	13.1	15.9	14.1
9	22.2	133	16.2	16.6	170	126	21.9	19.8	14.1	12.7	15.5	13.8
10	25.1	118	16.2	21.9	162	132	21.5	20.5	13.8	12.4	15.2	13.4
11	27.5	53.3	15.9	23.0	147	112	20.5	21.2	13.4	12.0	14.8	12.7
12	30.4	45.9	16.2	28.6	159	95.7	19.8	21.9	12.7	11.7	14.5	12.4
13	32.5	35.0	15.9	33.9	194	76.6	19.4	22.6	12.4	11.3	14.1	11.7
14	35.0	32.1	15.9	41.3	199	71.7	18.7	35.7	12.4	10.9	13.8	10.9
15	37.4	31.4	15.5	43.4	224	66.4	18.4	48.7	12.4	10.6	13.4	10.6
16	40.3	30.0	15.2	50.5	208	60.7	17.7	28.3	12.4	10.2	13.1	10.2
17	42.4	29.3	15.2	62.2	234	53.7	17.3	33.2	12.4	9.9	12.7	9.9
18	44.8	28.6	14.8	84.8	270	48.4	16.6	35.7	12.4	10.6	12.4	9.2
19	47.7	27.2	15.2	98.2	217	45.2	16.2	33.5	12.4	11.3	12.0	8.8
20	59.0	26.5	14.8	105	147	44.8	16.2	26.5	12.0	12.0	11.7	8.8
21	67.1	25.4	14.8	106	119	43.8	15.9	23.3	12.0	12.4	11.3	9.2
22	73.5	24.7	14.5	104	105	42.0	15.5	23.0	12.0	13.1	10.9	9.2
23	80.9	23.7	14.5	109	108	46.3	15.5	23.0	12.0	13.8	10.6	9.5
24	85.1	23.0	13.8	119	105	39.2	15.2	23.0	12.0	23.0	10.2	9.5
25	98.3	22.2	13.8	136	90.4	37.8	14.8	23.7	12.0	14.8	9.9	10.2
26	85.8	20.8	13.8	173	101	35.3	14.5	22.6	12.0	15.5	9.5	10.2
27	83.3	20.1	13.8	167	103	33.9	14.5	22.6	12.0	16.2	9.2	10.2
28	80.2	19.1	13.1	194	118	32.5	14.1	22.2	12.4	16.6	8.8	10.6
29	78.0	18.4	13.1	152	121	31.4	13.8	22.2	13.1	17.3	8.5	10.6
30	75.6		13.4	127	120	32.1	13.8	21.5	13.4	18.0	8.1	10.9
31	73.1		13.4		129		13.4	20.5		18.7		10.9
Sum		1,419.0		2,117.8		2,421.5		728.0		427.0		349.9
	1,409.7		477.9		4,825.4		585.5		408.9		397.3	
Current Year 1984										Period 1954-1984		
Month	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet			
	High	Low	Day	High	Day	Low			Average	Maximum	Minimum	
Jan.			25	88.3	1.1	7.1	45.6	2,795	2,104	4,745	466	
Feb.			9	133	29	18.4	49.1	2,815	3,128	7,059	509	
Mar.			1	18.0	128	13.1	15.5	948	2,212	5,291	560	
Apr.			28	194	1	13.8	70.6	4,200	3,206	6,111	899	
May			18	270	25	90.4	156	9,573	7,589	30,179	1,557	
June			6	163	29	31.4	80.9	4,805	8,855	85,952	2,027	
July			1	29.0	31	13.4	18.7	1,162	4,556	48,782	899	
Aug.			15	48.7	1	14.1	23.3	1,444	2,475	13,292	661	
Sept.			1	19.3	120	12.0	13.8	811	2,362	11,273	665	
Oct.			24	23.0	17	9.9	13.8	847	2,872	9,831	623	
Nov.			1	18.4	30	8.1	13.4	788	2,091	10,461	520	
Dec.			5	15.5	119	8.8	11.3	695	2,509	34,043	466	
Yearly				270		7.1	42.3	30,883	44,119	179,482	13,462	
Meters		Cubic Meters per Second				Thousands of Cubic Meters						
			7.65		0.20	1.20		38,093	54,417	221,389	16,608	

2 Mean daily

! And other days

DIVERSIONS FROM THE RIO GRANDE UNITED STATES SIDE, RIO GRANDE CITY TO ANZALDUAS DAM

Beginning June 1971, the Texas Water Rights Commission, now the Texas Department of Water Resources assumed control of the United States portion of the water in Falcon Reservoir and in the Rio Grande below Falcon Dam, the disposition of such waters being made by its Rio Grande Watermaster. Previous to that, since June 1956, such waters had been under the jurisdiction of the 93rd District Court of Texas administered by its Special Water Master.

During 1934, 133,907 irrigable acres (74,425 ha) and several towns and rural homes were allotted Rio Grande water in the river reach between the gaging station at Rio Grande City and Anzalduas Dam. Such irrigable area was 25.3% of the total irrigable acres (ha) below Falcon Dam allotted Rio Grande water.

The total diversion during 1984 in this river reach was 226,405 acre-feet (279,256,000 m³), or 21.74 of the total water diverted from the Rio Grande below Falcon Dam. About 76% of the water diverted in this river reach was determined by the International Boundary and Water Commission through records of discharge obtained by means of flow meters and by deflection meters developed by the Commission. The records for the rest of these diversions were furnished by the Rio Grande Watermaster and were determined from records of discharge obtained by means of flow meters. More than one crop per year is often grown on parts of this land.

EXTREME FLOWS FROM RECORDS:

Average Flow in Second-Foot (Cubic Meters per Second)

Daily:	Max. 1,220 (34.6)	June 21, 1950	Min. 0	Occasionally
Monthly:	Max. 1,010 (28.5)	June 1969	Min. 10.3 (3.23)	March 1957
Yearly:	Max. 457 (12.9)	1932	Min. 138 (5.32)	1966

Mean Daily Discharge in Second-Feet 1984 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	144	12.1	537	513	1,020	683	297	273	300	52.7	156	410
2	166	21.1	553	768	953	270	561	316	286	82.0	173	326
3	208	97.1	320	777	868	196	510	313	315	137	92.0	487
4	323	43.4	286	754	811	536	379	250	369	122	82.3	465
5	255	11.7	463	761	674	411	505	267	213	202	177	327
6	299	25.8	453	696	566	448	461	365	107	176	221	239
7	167	21.2	495	529	760	361	270	271	127	98.5	261	225
8	231	56.2	461	549	760	314	283	251	56.1	149	260	87.4
9	215	102	419	805	756	249	524	211	18.5	164	270	106
10	265	129	217	816	780	235	519	190	90.7	376	181	167
11	353	92.2	206	834	754	483	515	172	136	271	194	262
12	274	108	427	710	604	444	564	184	211	285	326	328
13	349	144	416	642	582	376	427	387	173	220	310	396
14	197	227	454	531	611	284	321	254	126	260	277	283
15	167	232	412	617	455	249	215	251	71.3	470	305	154
16	288	255	356	393	393	154	514	268	61.2	389	265	176
17	289	255	247	794	248	200	525	253	69.3	383	247	323
18	234	174	233	778	216	387	460	231	113	413	268	300
19	142	172	381	711	81.3	253	462	258	117	377	483	335
20	134	239	402	684	104	260	386	342	106	298	397	328
21	98.5	152	434	557	87.7	213	250	398	195	318	335	274
22	98.0	202	423	485	102	255	279	441	111	475	169	168
23	52.0	190	394	688	87.1	185	522	457	113	356	212	124
24	66.7	211	267	704	113	241	465	327	192	316	161	89.2
25	156	198	235	702	87.5	367	459	230	286	276	155	67.0
26	36.2	107	533	684	123	346	401	139	281	192	359	269
27	30.4	160	542	594	94.5	330	294	441	208	93.3	387	254
28	55.1	242	534	544	146	409	229	399	220	96.3	344	135
29	49.3	233	487	545	150	383	184	412	56.6	98.9	340	72.4
30	27.7		482	767	165	268	210	441	22.4	165	308	69.9
31	15.2		277		244		209	383		112		40.8
Sum		4,022.8		20,342		9,840		9,375		7,423.7		7,287.7
	5,386.1		12,346		13,406.1		12,200		4,751.1		7,765.3	

Month	Average Rainfall Inches**		Current Year 1984				Average Second- Feet	Total Acre-Feet	Period 1957-1984		
	1957-1984	1984	Extreme Second-Feet		High	Low			Acre-Feet		
	Day	Day	Day	Day					Average	Maximum	Minimum
Jan.	1.36	3.78	11	353	31	15.2	174	10,683	12,547	28,747	2,010
Feb.	1.19	.53	116	255	5	11.7	139	7,979	12,785	38,599	1,640
Mar.	.66	.18	2	553	11	206	398	24,488	20,966	41,200	637
Apr.	1.42	.01	11	834	22	485	678	40,348	26,627	43,037	5,760
May	2.47	2.00	1	1,020	19	81.3	432	26,591	23,630	48,400	3,177
June	2.60	1.47	1	683	16	154	328	19,517	24,085	59,900	6,011
July	1.51	1.42	12	564	29	184	394	24,198	23,038	46,423	5,753
Aug.	2.27	1.26	23	457	26	139	302	18,595	22,217	36,280	6,866
Sept.	3.81	5.47	4	369	9	18.5	153	9,424	15,179	35,000	4,136
Oct.	2.56	1.73	22	475	1	52.7	239	14,725	16,756	37,755	2,830
Nov.	.97	.65	19	483	4	82.3	259	15,402	14,601	27,516	2,930
Dec.	.91	.65	3	487	31	40.8	235	14,455	12,520	25,000	2,506
Yearly	21.73	19.15		1,020		11.7	312	226,405	225,001	330,908	136,460
Yearly	Millimeters		Cubic Meters per Second				Thousands of Cubic Meters				
	552	486		28.9		0.33	8.84	279,266	277,534	405,175	168,323

** United States side - average of several stations in the reach Ø Mean daily † And other days

DIVERSIONS FROM THE RIO GRANDE ANZALDUAS CANAL NEAR REYNOSA, TAMAULIPAS

DESCRIPTION: Cableway, gravity well, and water-stage recorder located on the left bank at latitude 26°07'50", longitude 98°20'10", 0.5 canal mile (0.8 km) from the canal intake, and about 5 miles (8 km) northwest of Reynosa, Tamaulipas. The canal intake is immediately upstream from Anzalduas Dam at river mile 170.3 (274.1 km), 102.2 river miles (164.5 km) downstream from Falcon Dam. The zero of the gage is 86.32 feet (26.31 m) above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 153 discharge measurements during the year, 143 by the Mexican Section and 10 by the United States Section of the Commission, and a continuous record of gage heights. Computations by shifting control methods. Records available: 1952 through 1934.

REMARKS: Diversions by this canal are for irrigation and domestic use in Mexico and for conveying water for storage in Culebron, Villa Cardenas, and Palito Blanco Reservoirs about 23 canal miles (37.0 km) downstream from this station. During 1984, 483,394 acres (195,623 ha) were irrigated with water delivered through this canal. More than one crop per year was grown on parts of this land. Flow at this canal station is affected by backwater from the operation of canal gates 4.5 miles (7.2 km), 11.3 miles (18.2 km), and 22.5 miles (36.2 km) below this station. During 1984, there was no water returned to the Rio Grande through Poniente Drain.

EXTREME FLOWS FROM RECORDS: Momentary: Max. 10,950 second-feet (310 m³/sec) on June 2, 1957 with a gage height of 16.01 feet (4.88 m). Min. no flow occurs frequently.

Average Flow in Second-Feet (Cubic Meters per Second)

Daily:	Max. 9,360 (265)	April 23, 1983	Min. 0	Frequently
Monthly:	Max. 6,570 (186)	May 1983	Min. 0	Several months
Yearly:	Max. 1,980 (56.1)	1959	Min. 150 (4.26)	1952

Mean Daily Discharge in Second-Feet 1984 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	597		530	1.4	9,120	1,650	463	1,020	336	1.4	1.4	1.4
2	600	1.4	452	371	7,770	1,930	459	1,150	341	215	1.4	1.4
3	583	1.4	353	657	7,590	1,930	445	1,260	353	477	1.4	1.4
4	551	1.4	353	819	7,590	2,050	438	1,410	445	484	1.4	399
5	1,100	1.4	339	1,150	7,700	2,150	434	1,420	371	477	1.4	392
6	1,080	1.4	331	1,540	7,910	2,100	431	1,410	212	242	1.4	413
7	1,090	1.4	351	1,940	7,950	2,390	424	1,370	1.4	1.4	212	367
8	1,260	396	336	2,030	7,950	2,550	392	1,550	1.4	1.4	352	371
9	1,620	869	335	2,430	7,950	2,510	1.4	1,770	1.4	1.4	321	180
10	1,790	929	336	2,840	7,770	2,550	1.4	1,980	1.4	1.4	300	1.4
11	1,890	918	336	3,230	7,170	2,490	360	2,120	1.4	1.4	295	1.4
12	2,240	962	327	3,570	6,670	2,250	733	2,070	193	214	148	1.4
13	2,560	862	146	3,990	6,890	1,940	777	2,350	396	431	1.4	1.4
14	3,250	749	1.4	4,490	5,970	1,190	790	2,670	388	357	1.4	1.4
15	3,990	632	1.4	4,940	4,730	749	312	2,670	385	351	1.4	1.4
16	4,410	632	1.4	5,090	3,740	654	809	2,670	392	448	1.4	1.4
17	4,410	703	1.4	5,580	3,390	657	905	2,940	166	187	1.4	236
18	4,100	703	1.4	6,750	1,450	540	713	2,900	1.4	1.4	1.4	319
19	4,130	699	140	7,730	1.4	410	611	2,970	1.4	1.4	192	314
20	3,530	699	399	8,300	1.4	388	614	3,090	1.4	1.4	392	388
21	2,970	703	241	8,510	1.4	438	611	3,210	1.4	1.4	344	459
22	2,970	431	1.4	8,300	1.4	438	491	2,840	190	1.4	364	191
23	2,910	353	1.4	8,440	1.4	1.4	364	2,220	357	1.4	284	1.4
24	2,630	338	1.4	8,720	374	1.4	353	1,580	353	1.4	142	1.4
25	2,030	335	1.4	9,110	823	1.4	326	1,240	350	194	1.4	1.4
26	1,210	339	1.4	9,010	978	1.4	473	819	344	320	1.4	1.4
27	1,050	448	1.4	8,930	978	1.4	805	480	1.4	348	1.4	1.4
28	893	445	1.4	8,690	1,030	1.4	305	431	1.4	399	1.4	1.4
29	773	512	1.4	8,650	1,030	1.4	912	427	1.4	403	1.4	1.4
30	664	1.4	1.4	8,300	1,140	230	909	334	1.4	463	1.4	230
31	1.4	1.4	1.4	1,310	1,310	1.4	798	335	1.4	523	1.4	562
Sum		13,566.8		154,098.4		34,323.9		54,806		6,551.2		5,037.4
	62,872.4		5,326.0		125,980.0		17,154.8		5,585.2		3,372.2	

Month	Current Year 1984						Period 1954-1934				
	Average Rainfall Inches**		Extreme Second-Feet				Average Second- Feet	Total Acre-Feet	Acre-Feet		
	1954-1984	1984	Day	High	Day	Low			Average	Maximum	Minimum
Jan.	1.42	5.35	116	4,410	31	1.4	2,030	124,704	103,878	265,594	1,520
Feb.	1.42	.55	10	929	1	1.4	466	26,907	95,638	251,519	1,036
Mar.	.67	.04	1	530	14	1.4	172	10,554	39,316	147,900	1,125
Apr.	1.77	0	25	9,110	1	1.4	5,120	305,673	135,594	327,589	23,381
May	2.64	3.94	1	8,120	119	1.4	4,060	249,873	202,171	403,665	28,291
June	2.76	.63	18	2,550	123	1.4	1,140	68,069	101,117	270,700	14,221
July	1.97	1.34	115	812	9	1.4	554	34,030	44,373	162,400	5,730
Aug.	2.87	2.13	21	3,210	30	334	1,770	108,666	89,617	270,437	6,709
Sept.	4.96	12.13	4	445	7	1.4	156	11,074	60,580	165,800	2,177
Oct.	2.83	1.81	31	523	1	1.4	211	12,992	55,976	209,590	0
Nov.	1.34	.16	20	392	1	1.4	112	6,593	13,106	83,590	0
Dec.	1.22	3.15	31	552	1	1.4	152	3,993	22,673	156,700	651
Yearly	25.87	31.23		9,110		1.4	1,330	969,238	964,039	1,434,920	551,945
	Millimeters		Cubic Meters per Second				Thousands of Cubic Meters				
	657	793		253		0.04	37.9	1,135,542	1,189,130	1,770,162	580,817

* Discharge measurement made on this day
! And other days

** Average of several stations

Ø Mean daily

RIO GRANDE BELOW ANZALDUAS DAM NEAR REYNOSA, TAMAULIPAS AND MISSION, TEXAS

DESCRIPTION: Cableway, gravity well, water-stage recorder, and selsyn-type transmitter, located on the right bank at latitude 26°07'50", longitude 98°19'55", and river mile 169.8 (273.3 km); 0.5 river mile (0.8 km) downstream from Anzalduas Dam, about 4.5 miles (7 km) northwest of Reynosa, Tamaulipas, and 10.3 river miles (16.6 km) upstream from the international highway bridge between Hidalgo, Texas and Reynosa, Tamaulipas. The zero of the gage is at mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 118 discharge measurements during the year, 98 by the Mexican Section and 20 by the United States Section of the Commission, and a continuous record of gage heights. Records available: 1952 through 1984.

REMARKS: Except during local storms, flow at this station is controlled largely by releases from Falcon Reservoir and by diversions into Anzalduas Canal. Excessive upstream flood flows are partly diverted into the United States floodway system inlet at Anzalduas Dam before reaching this station. Prior to January 1, 1968 the zero of the gage was 82.61 feet (25.18 m) above mean sea level, U. S. C. & G. S. datum. The transmitter relays gage height data to the Anzalduas Dam control room.

EXTREME FLOWS FROM RECORDS: Momentary: Max. 131,000 second-feet (3,700 m³/sec) on September 24, 1967 with a gage height of 30.51 feet (9.30 m). Min. periods of no flow have occurred on several occasions in 1953, 1954, 1956, and 1957.

Average Flow in Second-Feet (Cubic Meters per Second)

	Max. 121,000 (3,440)	Sept. 25, 1967	Min. 0	Occasionally
Monthly:	Max. 37,830 (1,070)	Oct. 1958	Min. 5.5 (0.16)	March 1957
Yearly:	Max. 6,410 (182)	1953	Min. 158 (4.49)	1957

Mean Daily Discharge in Second-Feet 1984 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	773	448	526	1,960	3,530	1,240	2,440	1,240	1,380	1,890	237	908
2	703	438	519	1,590	3,530	1,140	2,470	1,240	1,460	569	201	908
3	897	371	530	1,430	4,240	1,890	2,490	1,330	1,470	284	208	904
4	1,020	334	678	1,850	3,670	2,010	2,350	1,250	1,310	326	230	784
5	1,090	516	826	2,010	4,050	2,220	2,370	1,290	978	253	255	745
6	1,640	710	713	2,210	4,030	3,360	2,610	1,410	777	325	267	410
7	1,440	791	597	2,260	4,270	2,620	2,400	1,360	1,060	360	328	219
8	1,400	491	664	2,510	4,130	2,410	2,390	1,320	657	427	396	208
9	1,470	153	738	2,660	3,850	2,440	2,450	1,440	371	413	367	223
10	1,370	144	597	2,800	3,780	2,980	2,310	1,420	340	413	254	445
11	1,480	141	742	2,950	3,780	2,980	2,320	1,350	288	632	299	463
12	1,560	145	791	2,890	3,810	2,690	2,190	1,210	305	618	604	452
13	1,400	158	756	3,020	3,810	2,950	2,200	1,230	360	431	614	459
14	1,350	200	929	3,350	5,230	2,820	1,920	1,440	403	431	537	302
15	1,530	287	1,080	3,600	5,760	3,070	1,820	1,460	388	519	406	233
16	1,770	378	1,170	3,450	3,130	3,010	1,890	1,250	420	516	682	260
17	1,670	371	1,130	3,710	3,470	2,950	1,430	996	371	629	703	341
18	1,370	463	978	3,920	4,660	2,890	1,250	1,110	142	657	678	357
19	1,180	466	830	3,810	4,870	2,830	1,030	1,520	153	858	685	438
20	989	452	869	3,710	2,560	2,580	1,040	1,770	147	833	682	546
21	904	371	915	3,670	943	2,360	1,050	1,420	154	713	689	625
22	830	374	968	3,520	724	1,930	1,100	1,150	147	706	374	403
23	844	371	961	3,400	777	1,940	1,140	1,200	142	696	614	321
24	841	283	1,050	3,290	851	1,920	1,140	999	139	703	593	255
25	1,640	185	1,200	3,100	307	1,930	1,130	996	164	710	851	247
26	2,400	351	1,310	3,960	238	2,180	1,070	939	201	456	1,050	343
27	936	494	1,230	3,960	544	2,330	953	1,060	212	424	1,050	558
28	351	678	1,080	4,030	713	2,380	950	1,250	212	470	1,050	590
29	132	533	1,100	3,810	872	2,490	904	1,340	224	742	1,090	295
30	174		1,010	3,510	855	2,390	953	1,390	1,940	420	1,000	287
31	329		1,410		1,030		1,210	1,530		303		284
Sum	35,483	11,097	27,897	91,940	88,024	72,530	52,970	39,920	16,315	17,727	16,994	13,959

Month	Current Year 1984						Period 1954-1984				
	Extreme Gage Feet		Extreme Second-Feet			Average Second-Feet	Total Acre-Feet	Acre-Feet			
	High	Low	High	Day	Low			Average	Maximum	Minimum	
Jan.	83.37	78.61	26	3,170	129	124	1,140	70,378	102,318	325,550	1,090
Feb.	80.35	78.08	8	1,050	9	106	381	22,010	76,135	276,539	830
Mar.	81.73	79.13	31	1,950	1	470	901	55,343	79,385	243,477	339
Apr.	86.94	80.35	24	6,290	3	1,080	3,070	182,335	115,744	319,470	3,160
May	88.29	78.48	15	7,420	125	219	2,840	174,612	149,472	479,551	35,360
June	94.71	80.35	6	4,310	1	1,080	2,420	143,852	189,820	680,021	7,850
July	82.68	79.89	6	2,670	128	840	1,710	105,061	137,579	557,022	2,000
Aug.	82.22	78.87	19	2,310	17	374	1,290	79,214	140,109	1,207,862	943
Sept.	83.17	78.02	30	3,050	18	88.3	544	32,346	239,639	1,862,856	3,920
Oct.	82.97	78.35	1	2,890	3	177	572	35,159	285,342	2,326,000	1,730
Nov.	80.41	78.08	29	1,130	1	177	569	33,733	134,764	1,438,000	1,430
Dec.	80.02	78.05	1	918	15	159	448	27,583	102,149	540,100	1,500
Yearly	88.29	78.02		7,420		88.3	1,320	961,726	1,752,455	4,640,968	114,749
	Meters		Cubic Meters per Second			Thousands of Cubic Meters					
	26.91	23.78		210		2.50	37.5	1,186,275	2,161,631	5,724,004	141,538

* Discharge measurement made on this day

! And other days

RIO GRANDE FLOODWAY DISCHARGES LOWER RIO GRANDE VALLEY

On the United States Side

Part of the excess water from floods entering the Lower Rio Grande Valley is diverted from the river through the United States floodway system with the inlet located at Anzalduas Dam near Mission, Texas.

Floodwater entering the system is measured first at the Banker Floodway Station at Anzalduas Dam near Mission and again 25.2 miles (40.6 km) downstream at the Main Floodway Station on Farm Road No. 88 bridge south of Weslaco. At a point 3 miles (4.8 km) southwest of Mercedes the floodway divides, one channel going north-eastward through the Arroyo Colorado Floodway to the Gulf of Mexico, and the other going to the gulf via the North Floodway, traveling first northward and then eastward to the gulf. At the point of diversion, a divisor dike, which runs longitudinally in the Main Floodway, divides and controls the flows into the Arroyo Colorado Floodway and the North Floodway. The flow of the Arroyo Colorado is measured at El Fuste Siphon south of Mercedes and farther downstream at the bridge on U. S. Highway No. 33 south of Harlingen. The North Floodway flow is measured at the bridge on old U. S. Highway No. 83 west of Mercedes and farther downstream at the bridge on U. S. Highway No. 77 near Sebastian.

In 1984, no flood flow was diverted through this floodway system.

On the Mexican Side

Part of the excess water from floods entering the Lower Rio Grande Valley is diverted from the river through the Mexican floodway system, with the inlet located 37.1 miles (59.7 km) downstream from Anzalduas Dam and, when necessary, through Anzalduas Canal located at Anzalduas Dam.

Floodwater entering the system through the Retamal Inlet flows into Culebron and Villa Cardenas Lakes through the Retamal Floodway, while flood flows entering the canal at Anzalduas Dam reach these lakes via the Culebron and Retamal Canals from where it flows in a southeastwardly direction via Floodway No. 1 into the Gulf of Mexico.

The Retamal Floodway replaces the previously used floodway system, which consisted of Retamal Canal, San Rafael Floodway, and Floodway No. 2.

In 1984, no flood flow was diverted through Retamal Floodway or Anzalduas Canal.

DIVERSIONS FROM THE RIO GRANDE UNITED STATES SIDE, ANZALDUAS DAM TO PROGRESO

Beginning June 1971, the Texas Water Rights Commission, now the Texas Department of Water Resources, assumed control of the United States portion of the water in Falcon Reservoir and in the Rio Grande below Falcon Dam, the disposition of such waters being made by its Rio Grande Watermaster. Previous to that, since June 1956, such waters had been under the jurisdiction of the 9th District Court of Texas administered by its Special Water Master.

During 1984, 122,073 irrigable acres (49,402 ha) and several towns and rural homes were allotted Rio Grande water in the river reach between Anzalduas Dam and the Progreso International Bridge. Such irrigable area was 16.8% of the total irrigable acres (hr) below Falcon Dam allotted Rio Grande water.

The total diversion during 1984 in this river reach was 200,895 acre-feet (247,699,000 m³), or 21.74 of the total water diverted from the Rio Grande below Falcon Dam. About 32% of the water diverted in this river reach was determined by the International Boundary and Water Commission through records of discharge obtained by means of flow meters, and by deflection meters developed by the Commission. The records for the rest of these diversions were furnished by the Rio Grande Watermaster and were determined from records of discharge obtained by means of flow meters. More than one crop per year is often grown on parts of this land.

EXTREME FLOWS FROM RECORDS:

Average Flow in Second-Foot (Cubic Meters per Second)			
Daily:	Max. 1,120 (31.7)	June 15 & 17, 1955	Min. 0 Occasionally
Monthly:	Max. 749 (21.2)	June 1969	Min. 13.3 (0.38) May 1972
Yearly:	Max. 357 (10.4)	1982	Min. 157 (4.73) 1970

Mean Daily Discharge in Second-Foot 1984 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	95.0	47.1	209	424	757	274	439	331	226	116	39.3	144
2	83.7	81.7	216	566	744	240	682	294	166	102	59.5	139
3	292	66.4	90.5	545	801	162	727	204	242	105	26.6	207
4	343	23.6	98.5	620	760	445	417	171	113	93.3	.8	208
5	342	.5	304	633	653	557	669	201	119	40.3	101	178
6	265	72.0	310	597	588	604	630	282	52.2	4.6	116	173
7	113	48.4	294	370	762	651	472	359	41.0	16.4	125	81.4
8	126	24.2	314	477	550	598	407	389	.4	80.5	132	9.8
9	472	6.8	268	604	677	528	476	392	7.1	98.4	104	11.2
10	296	2.1	232	712	641	500	568	313	49.3	104	59.4	144
11	323	.3	158	746	757	630	559	281	60.2	205	79.8	174
12	403	.3	314	760	737	686	519	274	38.7	233	191	172
13	339	5.0	483	611	599	701	497	407	71.0	149	211	199
14	207	72.1	390	549	452	720	360	376	74.6	135	212	141
15	193	90.3	445	540	428	612	409	412	7.3	242	202	59.3
16	332	112	421	710	233	498	472	382	21.0	271	182	77.6
17	320	125	376	703	165	439	390	293	44.6	259	117	75.4
18	275	11.2	153	561	109	574	420	252	6.9	250	96.6	216
19	295	70.9	510	736	8.2	463	315	243	1.3	222	211	219
20	160	125	402	620	6.4	471	259	392	1.3	78.9	279	274
21	77.7	93.6	476	449	83.6	443	234	441	1.9	181	200	285
22	25.9	186	371	496	102	387	231	431	1.9	264	59.3	211
23	110	185	335	744	166	242	294	359	18.9	280	149	81.8
24	96.4	143	265	725	238	350	321	327	74.8	206	58.8	7.9
25	52.2	96.8	239	685	121	504	285	195	74.3	179	83.2	7.9
26	56.9	61.3	450	693	39.0	551	208	159	83.1	134	252	165
27	10.9	207	449	742	29.5	587	230	301	94.4	46.5	299	235
28	16.3	227	494	586	234	508	111	303	97.6	40.2	347	146
29	21.7	235	492	550	242	493	112	293	18.2	95.2	340	135
30	63.5	273	671	254	344	248	248	314	5.3	65.4	257	41.5
31	44.6	305	305	300	300	254	254	223	63.4	63.4	31.9	32.9
Sum		2,411.6	18,715	14,932	12,225	9,597	1,813.3	4,366.1	4,600.3	4,251.7		
	5,842.8		10,147.0									

Month	Current Year 1984							Period 1957-1984				
	Average Rainfall Inches**	Extreme Second-Foot				Average Second-Foot	Total Acre-Foot	Acre-Foot				
		1957-1984	1984	High	Low			Average	Maximum	Minimum		
Jan.	1.50	4.13	9	472	27	10.9	198	11,589	12,515	34,959	723	
Feb.	1.38	.54	29	235	111	.3	83.2	4,783	10,005	28,535	1,140	
Mar.	.68	.05	19	510	3	90.5	327	20,126	16,728	35,100	1,050	
Apr.	1.48	.02	12	760	7	370	624	37,121	20,814	39,277	3,630	
May	2.75	2.68	3	801	20	6.4	393	24,471	21,532	43,150	817	
June	2.59	.51	14	723	3	162	409	29,517	27,037	44,541	5,336	
July	1.70	1.27	3	727	28	111	394	24,248	23,346	41,100	6,597	
Aug.	2.53	1.06	21	441	26	153	310	19,035	16,778	27,542	7,452	
Sept.	4.30	7.69	3	242	8	.4	50.4	3,597	12,280	28,000	3,214	
Oct.	2.76	1.56	23	289	6	4.6	141	8,660	14,109	29,215	2,059	
Nov.	1.19	.17	28	347	4	.8	153	9,125	10,996	22,818	1,015	
Dec.	1.10	1.73	21	285	124	7.9	137	3,433	10,268	19,952	1,852	
Yearly	23.95	21.41		801		0.3	277	200,895	195,409	265,365	121,008	
	Millimeters		Cubic Meters per Second					Thousands of Cubic Meters				
	603	544		22.7		0.01	7.84	247,699	242,267	327,331	149,263	

** United States side - average of several stations in the reach Ø Mean daily † And other days

DIVERSIONS FROM THE RIO GRANDE UNITED STATES SIDE, PROGRESO TO SAN BENITO

Beginning June 1971, the Texas Water Rights Commission, now the Texas Department of Water Resources, assumed control of the United States portion of the water in Falcon Reservoir and in the Rio Grande below Falcon Dam, the disposition of such waters being made by its Rio Grande Watermaster. Previous to that, since June 1955, such waters had been under the jurisdiction of the 93rd District Court of Texas administered by its Special Water Master.

During 1974, 321,025 irrigable acres (129,916 ha) and several towns and rural homes were allotted Rio Grande water in the river reach between Progreso and the gaging station at San Benito. Such irrigable area was 44.2% of the total irrigable acres (ha) below Falcon Dam allotted Rio Grande water.

The total diversion during 1984 in this river reach was 484,099 acre-feet (597,125,000 m³), or 46.7% of the total water diverted from the Rio Grande below Falcon Dam. About 93% of the water diverted in this river reach was determined by the International Boundary and Water Commission through records of discharge obtained by means of flow meters, by open channel rating stations, and by deflection meters developed by the Commission. The records for the rest of these diversions were furnished by the Rio Grande Watermaster and were determined from records of discharge obtained by means of flow meters. More than one crop per year is often grown on parts of this land.

EXTREME FLOWS FROM RECORDS:

		Average Flow in Second-Foot (Cubic Meters per Second)			
Daily:	Max. 2,750 (77.9)	June 15, 1965		Min. 0	Occasionally
Monthly:	Max. 2,080 (58.9)	June 1956		Min. 53.5 (1.52)	March 1937
Yearly:	Max. 308 (22.3)	1950		Min. 357 (10.4)	1968

Mean Daily Discharge in Second-Foot 1984 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	792	216	300	755	2,260	473	1,370	726	814	174	171	654
2	821	272	305	1,100	2,040	698	1,460	774	717	179	94.0	560
3	550	261	322	910	2,050	771	1,490	751	674	139	41.0	564
4	484	264	322	1,160	2,120	863	1,470	833	787	83.8	0	551
5	638	117	458	1,180	2,150	1,110	1,380	773	825	0	69.0	476
6	569	53.4	507	954	2,130	1,170	1,310	773	717	88.5	137	192
7	787	53.6	384	1,230	2,320	1,420	1,430	826	440	185	90.2	81.4
8	724	56.9	317	1,470	2,300	1,590	1,410	919	380	221	217	81.9
9	724	78.8	387	1,730	2,350	1,310	1,340	924	126	250	150	81.4
10	723	69.4	436	1,700	2,330	1,240	1,390	897	142	239	164	192
11	642	53.2	429	1,690	2,290	1,700	1,210	836	152	199	119	282
12	696	50.8	432	1,880	2,290	1,750	1,050	797	113	194	222	262
13	772	59.1	352	1,750	2,270	1,810	984	630	152	144	332	287
14	626	54.6	262	1,780	2,060	1,780	906	674	204	87.5	326	226
15	595	57.8	368	1,870	1,950	1,510	806	550	183	93.3	177	229
16	829	225	586	1,960	1,430	1,340	898	489	244	99.4	116	222
17	876	210	557	1,980	1,250	1,670	986	378	217	180	216	194
18	852	77.6	559	2,030	787	1,780	822	288	124	194	317	198
19	785	155	354	2,100	347	1,640	597	241	16.2	180	343	224
20	635	286	243	2,070	274	1,730	379	548	26.2	325	372	220
21	416	305	417	2,000	196	1,260	438	713	35.8	386	362	240
22	511	183	446	1,850	258	1,190	588	740	37.1	389	415	245
23	467	59.7	466	1,880	331	1,230	648	590	30.4	286	322	294
24	399	102	483	1,880	324	1,170	616	552	35.8	354	239	235
25	172	55.5	491	1,930	196	973	581	627	35.3	325	234	238
26	0	59.1	439	1,940	101	963	567	560	33.9	320	498	256
27	27.7	163	660	2,100	77.5	1,100	468	696	34.0	235	547	229
28	40.0	276	648	2,160	198	1,240	348	653	34.4	270	578	310
29	40.2	298	652	2,090	444	1,220	339	804	17.0	173	744	259
30	14.4		648	2,120	471	1,260	583	812	90.8	176	766	274
31	41.3		639		476		579	799		135		298
Sum		4,172.5		51,249		38,961		21,183		6,304.5		8,655.7
	16,348.6		13,869		40,070.5		28,443		7,438.9		8,378.2	

Month	Average Rainfall Inches**		Current Year 1984				Period 1957-1984				
	1957-1984	1984	Extreme Second-Foot		Average Second-Foot	Total Acre-Foot	Acre-Foot				
			Day	High			Day	Low	Average	Maximum	Minimum
Jan.	1.65	4.46	17	876	26	0	527	32,427	37,822	97,130	4,872
Feb.	1.77	.85	21	305	12	50.8	144	8,276	20,508	49,859	4,807
Mar.	.78	.03	27	660	20	243	447	27,509	25,800	54,200	3,280
Apr.	1.61	.05	28	2,160	1	755	1,710	101,651	48,878	101,651	12,900
May	2.98	2.13	9	2,350	26	77.5	1,290	79,479	52,654	110,440	9,277
June	3.03	.38	13	1,810	1	473	1,300	67,278	67,548	123,000	14,674
July	2.14	1.64	3	1,490	29	339	918	56,416	43,809	89,373	11,307
Aug.	2.97	.74	9	924	19	241	683	42,016	32,182	64,223	12,736
Sept.	5.17	11.59	5	825	19	16.2	248	14,755	23,671	59,400	4,308
Oct.	3.17	3.14	22	389	5	0	203	12,505	24,234	58,164	5,146
Nov.	1.53	.11	30	756	4	0	279	16,613	19,011	44,359	4,853
Dec.	1.33	1.78	1	654	7	81.4	279	17,168	20,741	37,500	6,663
Yearly	28.13	26.90		2,350		0	667	486,098	416,858	586,544	266,680
Yearly	Cubic Meters per Second				Thousands of Cubic Meters						
	Millimeters										
	715	683		66.6		0	13.9	599,592	514,185	723,502	328,950

** United States side - average of several stations in the reach Ø Mean daily ! And other days

**RIO GRANDE NEAR SAN BENITO, TEXAS
AND RAMIREZ, TAMAULIPAS**

DESCRIPTION: Cableway, concrete control weir, bubbler gage, water-stage recorders (graphic and digital), and digital transmitter, located on the left bank at latitude 26°01'50", longitude 97°43'40", and river mile 96.8 (155.8 km), 3.9 river miles (6.3 km) downstream from San Benito pumping plant and about 9.5 miles (15.3 km) southwest of San Benito, Texas. The zero of the gage is at mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 25 discharge measurements during the year and a continuous record of gage heights. Computations for high flows by shifting control methods. Low and medium flow computations based on a stable control weir rating curve defined by meter measurements. Records available: November 26, 1952 through August 25, 1953, and December 1953 through 1984.

REMARKS: Except for diversions, tributary inflows, and drainage returns below Falcon Dam, flow at this station after August 25, 1953 was controlled largely by releases from Falcon Reservoir, 178.0 river miles (286.4 km) upstream. Excessive upstream flood flows are partly diverted through the United States and Mexican floodway systems before reaching this station. The transmitter relays gage height data via radio to the Texas Department of Water Resources office in Weslaco. The concrete control weir was constructed in December 1955, and the gage was moved to its present location just above the weir on January 4, 1967.

EXTREME FLOWS FROM RECORDS: Momentary: Max. 25,000 second-feet (708 m³/sec) on September 29, 1967 with a gage height of 61.05 feet (18.61 m). Min. no flow occurs frequently.

Average Flow in Second-Feet (Cubic Meters per Second)**

Daily:	Max. 24,800 (702)	Sept. 29, 1967	Min. 0	Frequently
Monthly:	Max. 14,300 (405)	Oct. 1971	Min. 39.5 (1.12)	December 1956
Yearly:	Max. 3,780 (107)	1976	Min. 200 (5.66)	1956

Mean Daily Discharge in Second-Feet 1984 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	59.0	342	70.5	156	515	30.3	469	119	277	759	294	64.9
2	54.8	254	68.0	534	418	34.6	428	152	469	1,690	222	62.9
3	50.3	254	68.4	189	540	33.6	295	195	573	970	201	207
4	55.6	194	70.5	82.3	916	25.4	240	234	489	211	217	236
5	53.8	194	73.4	59.5	508	46.4	330	249	521	274	207	179
6	56.9	309	72.3	57.8	799	192	319	255	409	222	117	179
7	96.5	399	49.3	77.4	882	589	357	183	443	196	96.0	211
8	565	484	47.7	139	957	326	436	107	685	155	102	292
9	580	764	47.1	344	877	105	454	87.5	587	109	96.0	196
10	394	482	47.5	212	532	358	397	60.8	546	81.9	84.0	130
11	441	267	48.4	187	319	520	305	49.6	281	79.1	76.0	58.4
12	417	227	49.5	64.4	302	420	577	135	214	112	90.0	34.4
13	355	215	43.8	54.4	484	197	627	291	167	90.5	64.0	42.4
14	391	177	52.0	159	709	285	672	214	137	82.9	47.0	46.3
15	578	173	46.1	477	1,970	425	952	207	187	183	45.0	48.0
16	485	181	36.0	676	3,000	719	653	521	205	211	47.0	49.4
17	477	109	33.8	500	1,910	941	394	475	304	177	50.0	45.1
18	524	89.0	35.6	641	2,020	676	302	423	474	120	120	51.4
19	454	110	59.9	989	3,230	603	247	516	400	160	274	47.2
20	347	174	225	718	4,010	563	386	589	285	168	182	53.1
21	515	169	157	672	2,770	740	288	634	235	206	131	46.8
22	492	131	73.9	829	1,380	632	259	447	199	293	102	39.5
23	412	196	70.4	913	432	374	191	298	178	173	90.0	36.4
24	390	210	69.4	651	215	302	138	185	178	146	102	37.7
25	658	166	70.4	513	345	337	164	209	170	198	139	57.1
26	1,250	169	238	423	293	402	210	214	153	284	258	64.6
27	2,220	161	429	997	163	256	229	246	119	395	210	63.5
28	1,720	104	234	1,050	201	247	410	123	124	296	189	61.5
29	928	82.2	183	936	91.3	170	475	53.3	201	154	136	54.1
30	517		104	1,020	14.4	346	346	59.9	166	431	62.0	48.8
31	413		90.5		21.1		171	134		482		65.7
Sum	15,970.9	6,776.2	2,986.5	14,180.9	30,923.8	10,996.3	11,621	7,667.1	9,518	9,387.4	4,054.0	2,809.2

Month	Current Year 1984						Period 1954-1984				
	Extreme Gage Feet		Extreme Second-Feet			Average Second-Feet	Total Acre-Feet	Acre-Feet			
	High	Low	High	Day	Low			Average	Maximum	Minimum	
Jan.	39.05	34.46	27	2,310	3	45.8	515	31,678	53,689	319,002	2,320
Feb.	35.93	34.55	9	842	29	76.8	234	13,440	49,198	363,000	3,380
Mar.	35.46	34.35	27	494	16	27.2	96.3	5,924	39,954	360,000	2,560
Apr.	36.52	34.39	30	1,270	12	34.6	473	28,127	46,083	251,919	11,500
May	44.33	34.40	20	4,270	30	6.5	998	61,336	72,144	382,973	16,873
June	36.17	34.34	15	1,040	4	18.3	357	21,811	82,245	525,330	16,100
July	36.11	34.75	15	971	31	113	375	23,050	80,958	447,886	4,690
Aug.	35.78	34.57	21	677	29	39.4	247	15,207	84,727	827,107	3,100
Sept.	35.95	34.36	3	902	27	99.1	317	18,879	145,271	638,757	7,710
Oct.	38.15	34.73	2	1,870	14	66.0	303	18,260	180,979	880,859	3,840
Nov.	35.36	34.48	1	357	14	43.0	135	8,041	83,072	662,009	5,640
Dec.	35.28	34.43	8	311	12	27.7	90.6	5,572	73,788	479,000	2,430
Yearly	44.83	34.34		4,270		6.5	347	251,635	992,008	2,743,424	145,520
	Meters		Cubic Meters per Second					Thousands of Cubic Meters			
	13.66	10.47		121		0.18	9.83	310,448	1,223,622	3,384,014	179,499

** Period 1954-1984

* Discharge measurement made on this day

! And other days

DIVERSIONS FROM THE RIO GRANDE UNITED STATES SIDE, SAN BENITO TO BROWNSVILLE

Beginning June 1971, the Texas Water Rights Commission, now the Texas Department of Water Resources, assumed control of the United States portion of the water in Falcon Reservoir and in the Rio Grande below Falcon Dam, the disposition of such waters being made by its Rio Grande Watermaster. Previous to that, since June 1956, such waters had been under the jurisdiction of the 93rd District Court of Texas administered by its Special Water Master.

During 1984, 89,008 irrigable acres (36,021 ha) and several towns and rural homes were allotted Rio Grande water in the river reach between the gaging stations near San Benito and Brownsville. Such irrigable area was 12.2% of the total irrigable acres (ha) below Falcon Dam allotted Rio Grande water.

The total diversion during 1984 in this river reach was 116,503 acre-feet (143,710,000 m³), or 11.2% of the total water diverted from the Rio Grande below Falcon Dam. About 87% of the water diverted in this river reach was determined by the International Boundary and Water Commission through records of discharge obtained by means of flow meters and by deflection meters developed by the Commission. The records for the rest of these diversions were furnished by the Rio Grande Watermaster and were determined from records of discharge obtained by means of flow meters. More than one crop per year is often grown on parts of this land.

EXTREME FLOWS FROM RECORDS:

		Average Flow in Second-Feet (Cubic Meters per Second)		
		June 14, 1963	Min.	Occasionally
Daily:	Max. 782 (22.1)	June 14, 1965	18.5 (0.52)	February 1966
Monthly:	Max. 542 (15.3)	June 1965	Min. 98.3 (2.78)	1981
Yearly:	Max. 223 (6.32)	June 1965		

Mean Daily Discharge in Second-Feet 1984 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	68.6	44.5	46.0	93.5	718	44.7	406	299	83.3	33.0	169	52.3
2	61.2	32.3	25.2	83.9	555	57.4	478	116	74.6	30.3	88.7	51.2
3	55.0	39.9	22.7	236	471	54.2	455	44.6	269	30.6	35.8	63.0
4	118	44.3	31.0	279	553	41.3	410	42.5	390	38.5	25.3	35.2
5	126	32.3	30.6	119	517	87.3	357	50.6	375	26.7	35.8	44.5
6	86.5	40.4	20.0	115	508	103	420	113	358	42.3	43.9	42.3
7	123	52.4	22.6	102	606	238	387	181	190	34.4	26.4	57.1
8	68.8	37.1	39.3	85.9	667	418	414	184	88.2	32.7	16.9	30.9
9	328	52.4	22.5	209	578	426	452	103	50.0	28.4	22.7	32.7
10	420	34.8	20.0	276	523	209	501	74.7	70.2	36.5	28.8	32.7
11	389	32.3	32.0	283	489	319	474	60.4	78.7	36.7	46.8	73.0
12	404	44.6	42.5	230	411	431	515	26.1	61.8	29.4	50.0	80.7
13	347	50.2	25.7	238	446	481	508	167	60.2	39.6	89.9	62.1
14	344	32.8	25.7	131	499	294	214	248	74.6	31.0	53.5	23.3
15	333	33.8	29.0	134	498	205	235	214	51.0	36.4	53.3	33.3
16	355	56.4	82.7	295	313	361	288	93.2	61.3	48.4	44.6	35.5
17	272	48.5	44.5	404	272	601	347	246	51.2	49.6	38.7	29.9
18	126	36.3	20.5	402	130	618	297	351	14.5	36.6	55.4	42.9
19	220	36.3	79.6	431	35.3	592	236	345	3.7	32.5	188	32.8
20	212	36.3	163	412	23.2	516	104	345	21.1	49.4	184	49.5
21	74.8	40.2	262	449	38.2	464	102	282	1.8	46.4	46.2	32.3
22	54.2	51.4	195	489	34.8	446	106	154	18.0	44.8	48.7	28.4
23	152	33.2	92.2	472	41.0	429	224	188	41.2	33.3	67.2	43.7
24	121	42.6	27.7	486	52.3	402	154	214	26.3	36.2	27.8	28.8
25	101	37.1	42.0	481	86.4	349	103	95.5	40.6	19.7	42.1	20.6
26	48.7	50.1	78.0	396	35.0	325	91.5	56.0	28.5	32.3	172	27.1
27	57.8	41.7	234	408	53.9	372	133	44.1	44.1	33.0	293	20.6
28	51.7	33.8	344	454	90.3	316	86.5	49.2	30.5	18.9	275	38.0
29	44.8	44.5	347	444	37.8	284	83.4	52.6	25.0	25.7	196	45.5
30	42.7	196	506	53.9	257	245	245	30.1	38.3	42.1	58.2	28.7
31	61.2	48.0		55.3		262	262	39.3		125		32.3
Sum	5,267.0	1,192.5	2,681.0	9,194.3	9,391.4	9,740.9	9,088.4	4,507.9	2,720.7	1,180.4	2,523.7	1,250.9
Current Year 1984										Period 1957-1984		
Month	Average Rainfall Inches**		Extreme Second-Feet			Average Second-Feet	Total Acre-Feet	Acre-Feet				
	1957-1984	1984	Day	High	Low			Average	Maximum	Minimum		
Jan.	1.81	4.71	10	420	30	42.7	170	10,447	10,396	24,568	1,290	
Feb.	1.75	.74	16	56.4	1	32.3	41.1	2,365	7,068	20,628	1,028	
Mar.	.69	.05	29	347	1	20.0	86.5	5,318	6,738	15,200	705	
Apr.	1.79	.01	30	506	2	83.9	305	18,237	11,842	27,753	2,180	
May	2.98	4.51	1	718	20	23.2	303	18,628	14,723	28,027	1,586	
June	2.99	1.01	18	618	4	41.3	325	19,321	16,905	32,279	3,788	
July	2.12	1.06	12	515	29	83.4	293	18,027	11,694	23,145	3,687	
Aug.	3.13	2.36	18	351	12	26.1	145	8,941	8,316	14,556	3,260	
Sept.	5.86	17.10	4	390	21	1.8	90.7	5,396	5,767	12,600	876	
Oct.	3.10	1.17	31	125	28	18.9	38.1	2,341	5,761	11,300	1,591	
Nov.	1.48	.09	27	293	8	16.9	84.1	5,006	4,734	9,021	1,796	
Dec.	1.59	2.75	12	80.7	125	20.6	40.4	2,481	5,444	11,200	2,014	
Yearly	29.28	35.55		718		1.8	160	116,508	109,388	161,503	71,171	
										Thousands of Cubic Meters		
										Cubic Meters per Second		
										Millimeters		
										744 903 20.3 0.05 4.53 143,710 134,928 199,214 87,783		
										# Mean daily 1 And other days		

** United States side - average of several stations in the reach

RIO GRANDE NEAR BROWNSVILLE, TEXAS AND MATAMOROS, TAMAULIPAS

DESCRIPTION: Cableway, bubbler gage, water-stage recorders (graphic and digital), and digital transmitter located on the left bank at latitude 25°52'35", longitude 97°27'20", and river mile 49.7 (78.3 km), 0.2 river mile (0.3 km) downstream from El Jardin pumping plant, and 7.0 river miles (11.2 km) downstream from the international highway bridge (Gateway) between Brownsville, Texas and Matamoros, Tamaulipas. The zero of the gage is at mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 24 discharge measurements during the year and a continuous record of gage heights. Computations by shifting control methods. Records available: 1934 through 1984.

REMARKS: Except for diversions, tributary inflows, and drainage returns below Falcon Dam, flow at this station after August 25, 1953 was controlled largely by releases from Falcon Reservoir, 226.1 miles (363.9 km) upstream. Excessive upstream flood flows are partly diverted into the United States and Mexican floodway systems before reaching this station. The transmitter relays gage height data via radio to the Texas Department of Water Resources in Mesquiteo.

EXTREME FLOWS FROM RECORDS: Momentary: Max. 31,700 second-feet (899 m³/sec) on October 3, 1945 with a gage height of 31.48 feet (9.60 m). Min. no flow occurs frequently.

Average Flow in Second-Feet (Cubic Meters per Second)**

Daily:	Max. 16,200 (459)	Oct. 19 & 20, 1971	Min. 0	Frequently
Monthly:	Max. 14,400 (408)	Oct. 1971	Min. 3.5 (0.10)	August 1957
Yearly:	Max. 3,640 (103)	1975	Min. 42.1 (1.19)	1956

Mean Daily Discharge in Second-Feet 1984 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	217	461	89.3	* 7.0	330 *	111 *	21.8	* 79.1	72.5	180	364	77.8
2	115	401	83.0	* 8.4	126	99.6	74.4	40.3	148	979 *	238	93.5
3	53.5	332 *	87.3	197	59.1	84.7	61.9	42.7	308	1,610	218	97.7
4	* 32.5	288	96.3	59.3	* 32.5	81.0	32.7	137	225 *	1,170	238	163 *
5	23.7	275	82.1	11.4	243	79.3	* 6.4	173	216	773	231 *	216
6	24.9	243	* 73.3	12.0	291	61.5	5.6	154	201	597	230	202
7	19.6	256	56.9	12.8	253	92.3	6.3	111	157	283	197	181
8	20.7	341	58.9	13.7	306	132	7.0	90.9	322	258	167	212
9	99.4	405	53.1	14.6	343	102	19.4	49.7	500	218	139	289
10	117	596	62.2	15.5	352	16.0	37.8	51.6	503	190	130	272
11	34.9	495	63.3	16.4	229	26.5	40.5	66.8	432	142	113	170
12	17.3	335	54.0	17.3	163	91.5	14.4	283	283	127	83.6	131
13	* 16.6	248	55.0	18.2	126	* 54.4	53.4	66.9	195	123	59.7	111
14	18.3	225	59.1	19.0	202	15.1	112	60.3	134	115	76.3	94.6
15	20.2	215	* 41.3	19.9	408 *	1.2	277	* 57.7	109	112	72.7	88.5
16	99.3	196	11.2	20.8	1,590	99.5	561	45.4	158	126 *	61.5	37.7
17	122	178	30.2	93.2	2,150	124	328	217	286	172	54.5	96.8
18	223	157	40.1	74.5	1,779	213	150 *	152	571	172	52.6	69.4
19	313	127	40.0	93.4	1,990	144	80.0	101	705	148	52.5	58.8
20	169	109	6.5	190	3,700	94.5	101	95.5	488 *	117	* 52.0	* 58.9
21	207	130 *	2.3	158	4,270	158	214	147	381	138	43.0	53.1
22	349	144	2.2	138	2,930	211	192	337	322	150	32.9	58.4
23	348	133	2.1	201	1,800	177	146	300	214	234	59.8	57.9
24	208	149	2.1	237 *	713	101	71.8	172	173	229	66.0	49.3
25	330	192	2.2	139	476	49.1	51.4	93.1	209	185	81.5	50.9
26	547	171	2.3	70.1	459	27.9	73.6	154	214	231	103	61.7
27	1,020	165	2.3	73.6	447	65.4	110	169	167	219	85.9	55.0
28	1,440	151	15.0	245	318	36.1	112	178	151	313	53.1	66.4
29	1,200	116	8.2	392	279	4.5	231	150	195	307	37.0	62.6
30	832	5.0	4.0	421	234	4.0	318	197	196	210	44.3	61.3
31	573	5.0			144		156	87.5		281		64.7
Sum	9,857.4	7,224	1,192.3	2,999.1	26,836.5	2,548.1	3,676.4	3,742.7	8,237.5	10,029	3,437.1	3,391.6

Month	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Period 1934-1984 Acre-Feet		
	High	Low	High	Low	Day	Day			Average	Maximum	Minimum
			Day	Day							
Jan.	10.49	2.94	28	1,530	13	15.7	285	17,568	44,006	330,268	283
Feb.	6.73	3.76	10	615	29	91.4	249	14,329	43,192	352,000	1,060
Mar.	3.76		1	97.0	123	2.1	38.5	2,365	34,735	361,000	2,050
Apr.	5.83		30	425	1	7.0	100	5,949	32,597	219,590	875
May	16.75	3.20	21	4,550	3	63.3	857	53,329	56,644	355,795	4,140
June	4.87	2.70	19	231	110	0	84.9	5,054	64,150	486,551	2,330
July	5.31	2.75	16	595	1	4.2	119	7,232	71,577	437,545	1,129
Aug.	5.41	3.03	22	397	3	30.3	121	7,424	75,196	812,033	218
Sept.	7.28	3.24	18	846	1	68.3	275	16,339	131,499	635,722	959
Oct.	9.25	3.80	3	1,650	16	106	324	19,832	159,107	837,207	755
Nov.	5.16	2.96	1	365	22	29.5	115	5,317	78,484	523,000	1,290
Dec.	5.10	3.05	10	343	24	46.9	109	6,727	71,375	480,000	524
Yearly	16.75			4,550	0	225		163,995	872,168	2,645,434	30,595
	Meters		Cubic Meters per Second				Thousands of Cubic Meters				
	5.11		129		0	6.37		201,162	1,076,172	3,263,143	37,740

** Period 1934-1984 * Discharge measurement made on this day 0 Mean daily
 † And other days

DIVERSIONS FROM THE RIO GRANDE UNITED STATES SIDE, BROWNSVILLE TO THE GULF OF MEXICO

Beginning June 1971, the Texas Water Rights Commission, now the Texas Department of Water Resources, assumed control of the United States portion of the water in Falcon Reservoir and in the Rio Grande below Falcon Dam, the disposition of such waters being made by its Rio Grande Watermaster. Previous to that, since June 1956, such waters had been under the jurisdiction of the 93rd District Court of Texas administered by its Special Water Master.

During 1934, 4,346 irrigable acres (1,759 ha) were allotted Rio Grande water in the river reach between the gaging station near Brownsville and the mouth of the Rio Grande. Such irrigable area was 0.6% of the total irrigable acres (ha) below Falcon Dam allotted Rio Grande water.

The total diversion during 1934 in this river reach was 2,575.7 acre-feet (3,177,000 m³), or 0.31 of the total water diverted from the Rio Grande below Falcon Dam. All records of diversions in this river reach, which were determined by means of flow meters, were furnished by the Rio Grande Watermaster. More than one crop per year is often grown on parts of this land.

EXTREME FLOWS FROM RECORDS:

		Average Flow in Second-Feet (Cubic Meters per Second)				
Daily:	Max. 57.7 (1.92)	May 1, 1934	Min. 0			
Monthly:	Max. 23.4 (0.66)	June 1955	Min. 0	Frequently		Occasionally
Yearly:	Max. 7.0 (0.20)	1955	Min. 0.7 (0.02)	1975		

Mean Daily Discharge in Second-Feet 1984 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0.1	0	2.8	0	67.7	0.9	4.0	0	0.4	0	0	0.1
2	.1	0	2.8	.4	33.4	.9	4.0	0	.4	0	0	.1
3	.1	0	2.8	.4	34.6	.9	4.2	0	.4	0	0	.1
4	.8	0	2.8	.4	22.0	.9	9.2	0	.4	2.1	0	.1
5	2.5	0	2.8	.4	18.2	.9	9.0	0	.4	2.1	3.5	.1
6	2.6	0	2.8	.4	19.1	.9	12.1	0	.4	2.1	3.5	3.4
7	2.6	0	3.1	0	24.9	.9	13.0	0	.4	0	3.5	3.4
8	2.5	.3	3.1	0	15.4	.9	12.1	0	.4	0	0	3.4
9	7.0	.3	1.8	0	17.6	1.9	12.1	0	.4	0	0	.1
10	9.1	.3	1.8	0	18.7	1.9	12.1	0	.4	0	0	.1
11	9.7	.3	1.8	0	18.0	3.2	13.4	0	.4	0	0	.1
12	9.7	.3	1.8	0	17.3	3.2	5.7	0	.4	0	0	.1
13	10.4	.3	3.1	0	17.3	9.3	3.9	0	.4	0	0	.1
14	10.4	.3	3.1	0	18.3	9.3	3.9	0	.4	0	1.2	.1
15	10.4	.3	1.4	0	13.5	11.5	1.2	2.1	.4	0	1.2	.1
16	11.9	0	1.4	4.2	10.9	11.0	1.2	6.0	.4	0	1.2	.1
17	4.4	2.7	1.4	6.9	9.2	12.4	1.2	9.2	.4	0	1.2	.1
18	2.7	2.7	1.4	7.1	8.8	12.4	2.9	9.2	.4	0	1.2	.1
19	2.2	2.7	7.1	8.1	8.8	13.1	2.9	9.2	.4	0	0	.1
20	2.2	2.7	7.1	8.1	7.2	13.1	6.6	9.2	.4	0	0	.1
21	2.2	2.7	7.1	10.1	7.2	15.4	6.5	6.0	.4	0	0	.1
22	2.2	2.7	7.1	10.1	7.1	16.2	6.6	3.9	.4	0	0	.1
23	2.9	0	7.1	10.1	6.9	15.0	6.5	3.9	.4	0	0	.1
24	2.3	0	1.4	10.1	6.9	8.3	4.8	0	.4	0	0	.1
25	.9	0	1.4	7.3	6.9	8.3	4.8	0	.4	0	0	.1
26	.9	0	1.4	7.3	6.9	8.3	1.2	0	.4	0	0	.1
27	.9	0	1.4	8.2	6.9	6.9	1.2	0	.4	0	0	.1
28	.9	0	1.4	8.2	6.9	3.8	1.2	0	.4	0	0	.1
29	.9	0	1.4	6.3	6.9	3.8	1.2	0	.4	0	0	.1
30	.9	0	1.4	6.3	6.9	3.8	1.2	0	.4	0	0	.1
31	.1	0	1.4	6.3	6.9	6.9	1.2	0	.4	0	0	.1
Sum	116.7	18.6	88.7	120.4	477.3	199.3	171.3	58.7	12.0	6.3	16.5	13.0
Current Year 1934										Period 1957-1934		
Month	Average Rainfall Inches**		Extreme Second-Feet			Average Second-Feet	Total Acre-Feet	Acre-Feet				
	1957-1934	1934	Day	High	Low			Average	Maximum	Minimum		
Jan.	1.33	5.07	16	11.9	! 1	0.1	3.8	231	380	1,275	0	
Feb.	1.72	.73	! 17	2.7	! 1	0	.6	36.9	220	902	0	
Mar.	.64	.07	! 19	7.1	! 15	1.4	2.9	176	133	634	0	
Apr.	1.84	0	! 21	10.1	! 1	0	4.0	239	253	952	0	
May	2.82	5.79	1	67.7	! 23	6.9	15.4	947	338	1,356	0	
June	2.80	1.28	22	16.2	! 1	.9	6.6	395	434	1,393	0	
July	2.04	1.02	11	13.4	! 15	1.2	5.5	340	110	317	13.7	
Aug.	3.09	3.04	! 17	9.2	! 1	0	1.9	116	195	778	0	
Sept.	6.05	19.64	! 1	.4	! 1	.4	.4	23.8	51.6	190	0	
Oct.	2.91	.85	! 4	2.1	! 1	0	.2	12.5	62.3	218	0	
Nov.	1.52	.01	! 5	3.5	! 1	0	.5	32.7	63.5	252	0	
Dec.	1.66	3.32	! 6	3.4	! 1	.1	.4	25.8	80.4	335	0	
Yearly	28.92	40.82		67.7		0	3.5	2,575.7	2,370.8	5,036.3	543.2	
	Millimeters		Cubic Meters per Second				Thousands of Cubic Meters					
	735	1,037		1.92		0	0.10	3,177	2,925	6,212	670	

** United States side - average of several stations in the reach ! Mean daily ! And other days

DIVERSIONS FROM THE RIO GRANDE

UNITED STATES SIDE, FALCON DAM TO THE GULF OF MEXICO

Beginning June 1971 the Texas Water Rights Commission, now the Texas Department of Water Resources, assumed control of the United States portion of the water in Falcon Reservoir and in the Rio Grande below Falcon Dam, the disposition of such waters being made by its Rio Grande Watermaster. Previous to that, since June 1956, such waters had been under the jurisdiction of the 93rd District Court of Texas administered by its Special Water Master.

In 1934, 726,581 irrigable acres (294,040 ha), several towns and many rural homes were allotted Rio Grande water between Falcon Dam and the Gulf of Mexico. The total diversion from the river was 1,244,327 acre-feet (1,288,156,000 m³). About 89% of the water diverted was determined through records of discharge obtained by means of flow meters, by open channel rating stations, and by deflection meters developed by the Commission. The records for the balance of the diversions were furnished by the Rio Grande Watermaster and were determined from records of discharge obtained by means of flow meters. Drainage from more than 90% of this area does not return to the Rio Grande, but some of it is reused within the area. More than one crop per year is often grown on parts of this land.

Diversion data pertaining to "Diversions from the Rio Grande-United States Side below Rio Grande City" for the period 1922 through 1957 may be found in previous issues of these Water Bulletins. The area irrigated below Rio Grande City is about 99% of the total acreage irrigated on the United States side below Falcon Dam.

A breakdown by river reaches of the total diversion below Falcon Dam shown in the tabulation below may be found in appropriate downstream order in preceding pages of this Water Bulletin. Because the mean daily discharges are rounded, the total acre-feet shown in the summary below may not equal the sum of the acre-feet of the individual reaches.

EXTREME FLOWS FROM RECORDS:

		Average Flow in Second-Foot (Cubic Meters per Second)				
Daily:	Max. 5,380 (152)	June 20 & 21, 1950	Min. 2.8 (0.08)	Aug. 10, 1930		
Monthly:	Max. 4,350 (123)	June 1960	Min. 192 (2.89)	March 1957		
Yearly:	Max. 1,830 (51.7)	June 1982	Min. 880 (24.9)	1970		

Mean Daily Discharge in Second-Foot 1984 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1,110	324	1,120	1,910	4,860	1,520	2,530	1,650	1,440	380	538	1,310
2	1,140	412	1,140	2,640	4,380	1,300	3,200	1,520	1,250	400	418	1,090
3	1,110	469	782	2,690	4,270	1,210	3,200	1,340	1,510	417	198	1,330
4	1,270	381	759	2,930	4,310	1,910	2,700	1,320	1,670	350	111	1,270
5	1,370	165	1,280	2,810	4,050	2,190	2,930	1,300	1,540	282	339	1,030
6	1,330	196	1,310	2,480	3,840	2,350	2,850	1,550	1,240	327	524	658
7	1,200	180	1,220	2,360	4,510	2,700	2,590	1,650	808	347	508	457
8	1,160	180	1,150	2,710	4,430	3,040	2,540	1,750	534	506	629	222
9	1,760	245	1,120	3,470	4,420	2,540	2,820	1,640	208	560	552	238
10	1,730	240	924	3,630	4,320	2,210	3,010	1,490	362	765	441	542
11	1,730	186	845	3,670	4,350	3,210	2,800	1,360	437	725	448	799
12	1,800	211	1,240	3,660	4,090	3,340	2,670	1,290	436	759	797	851
13	1,820	264	1,300	3,270	3,940	3,400	2,430	1,600	464	570	943	955
14	1,400	392	1,150	3,010	3,670	3,110	1,820	1,570	488	522	876	687
15	1,310	420	1,270	3,280	3,360	2,610	1,670	1,450	322	853	745	494
16	1,830	656	1,460	3,800	2,390	2,300	2,180	1,260	394	832	615	525
17	1,770	650	1,240	3,910	1,950	2,940	2,270	1,200	388	899	627	639
18	1,500	310	978	3,900	1,260	3,390	2,020	1,150	269	914	743	774
19	1,450	442	1,340	4,010	497	2,980	1,630	1,100	149	838	1,230	830
20	1,150	694	1,230	3,810	428	3,010	1,150	1,640	170	772	1,240	892
21	677	600	1,570	3,480	428	2,420	1,050	1,850	253	946	997	852
22	698	633	1,450	3,340	517	2,310	1,220	1,780	183	1,190	706	674
23	790	478	1,360	3,810	646	2,130	1,710	1,610	217	968	754	563
24	679	508	1,060	3,820	753	2,190	1,570	1,430	343	926	490	378
25	485	293	1,020	3,820	515	2,220	1,450	1,160	454	810	515	346
26	156	282	1,520	3,740	319	2,210	1,280	915	442	689	1,280	727
27	130	576	1,900	3,870	272	2,470	1,140	1,480	400	412	1,530	749
28	166	783	2,030	3,770	684	2,600	783	1,410	403	426	1,540	637
29	158	814	1,990	3,640	890	2,400	723	1,570	128	394	1,620	519
30	150		1,610	4,070	960	2,150	1,290	1,600	162	449	1,390	418
31	163		1,280		1,090		1,310	1,450	436			408
Sum		11,984		101,310		74,360		45,085		19,664		21,864
	33,192		39,648		76,409		74,360	62,536		17,063		23,400

Month	Average Rainfall Inches**		Extreme Second-Foot				Average Second-Foot	Total Acre-Foot	Acre-Foot		
	1957-1984	1984	High		Low				Average	Maximum	Minimum
	Day	Day	Day	Day	Day	Day					
Jan.	1.49	4.15	16	1,830	27	130	1,070	65,835	74,333	182,403	9,717
Feb.	1.44	.63	29	814	5	165	413	23,770	51,367	126,230	11,785
Mar.	.67	.09	28	2,030	4	759	1,280	78,641	71,435	149,000	6,280
Apr.	1.52	.02	30	4,070	1	1,910	3,380	200,945	109,622	209,970	25,100
May	2.68	2.75	1	4,960	27	272	2,460	151,555	114,004	228,833	16,071
June	2.76	1.14	13	3,400	3	1,210	2,480	147,491	137,005	259,000	31,931
July	1.75	1.39	12	3,200	29	723	2,020	120,038	102,816	196,205	31,502
Aug.	2.59	1.12	21	1,850	26	915	1,450	89,425	80,279	143,286	36,208
Sept.	4.60	8.49	4	1,670	29	128	569	33,844	57,471	136,000	12,709
Oct.	2.76	1.83	22	1,190	5	282	634	39,003	61,652	124,593	12,991
Nov.	1.21	.41	29	1,620	4	111	780	46,413	49,950	97,969	12,674
Dec.	1.14	1.33	3	1,330	8	222	705	43,367	49,640	84,500	14,034
Yearly	24.61	23.35		4,860		111	1,440	1,044,327	959,574	1,322,493	636,835
	Millimeters		Cubic Meters per Second				Thousands of Cubic Meters				
	625	593		138		3.14	40.8	1,288,156	1,183,615	1,631,304	785,536

** United States side - average of several stations in the reach Ø Mean daily ! And other days

OUTFALLS FROM SEWERS INTO THE RIO GRANDE In Acre-Feet

EL PASO SEWAGE OUTFALL

Treated sewage effluent enters the Rio Grande through the outfall of the Haskell Street Wastewater Treatment Plant located 7.1 river miles downstream from the American Dam. The outfall from this plant consists of flows measured by a Sparling propeller outfall meter and estimates of amounts which bypass the meter. The effluent from the Socorro Treatment Plant, located 17.6 miles below the American Dam, after treatment in oxidation ponds is discharged to the Riverside Canal to be used for irrigation. This effluent is also measured by a Sparling propeller outfall meter, does not enter the Rio Grande, and is not included in the table below. Both plants are operated by the El Paso Water Utilities of the Public Service Board of the City of El Paso, Texas, and the records are furnished by that agency.

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Yearly
1984	2,163	2,117	2,024	1,996	2,175	2,239	2,478	2,632	2,458	2,401	2,253	2,303	27,249
* Average	2,079	1,947	2,051	2,052	2,219	2,199	2,330	2,328	2,240	2,181	2,072	2,108	25,806

EAGLE PASS SEWAGE OUTFALL

This sewage outfall enters the Rio Grande at river mile 495.8 and about 600 feet upstream from the Eagle Pass-Piedras Negras International Railroad Bridge. The records are based on weekly current meter measurements and estimates by personnel of the International Boundary and Water Commission.

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Yearly
1984	195	155	158	153	168	160	152	158	158	191	177	194	2,019
* Average	157	134	153	146	159	165	170	176	173	184	168	171	1,956

LAREDO SEWAGE OUTFALL

This sewage outfall enters the Rio Grande at river mile 360.0 and 356.0, 0.9 and 4.9 river miles downstream from the old international highway bridge between Laredo, Texas and Nuevo Laredo, Tamaulipas. The South Laredo Treatment Plant began operating during September 1983. The record is furnished by Laredo Waterworks System.

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Yearly
1984	840	753	830	694	873	824	852	885	846	870	809	818	9,399
* Average	722	636	708	696	802	784	827	837	830	822	757	752	9,173

NUEVO LAREDO SEWAGE OUTFALL

This sewage outfall enters the Rio Grande at river mile 358.7 and 357.7, 2.2 and 3.2 miles downstream from the old international highway bridge between Laredo, Texas and Nuevo Laredo, Tamaulipas. The records are computed by the International Boundary and Water Commission based on current meter measurements, the weir discharge table, and a continuous record of gage heights. Discharge measurements for other outfalls in the area are on file with the International Boundary and Water Commission.

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Yearly
1984	454	448	409	353	466	479	409	370	327	433	508	575	5,331
* Average	863	764	782	707	825	748	717	719	719	833	825	884	9,386

BROWNSVILLE SEWAGE OUTFALL

This sewage outfall enters the Rio Grande at river mile 52.2, 3.5 river miles downstream from the Gateway Bridge between Brownsville, Texas and Matamoros, Tamaulipas and 3.5 river miles upstream from the Brownsville Gaging Station. Records are furnished by the city of Brownsville.

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Yearly
1984	549	506	509	493	550	524	547	553	780	636	529	594	6,770
* Average	711	649	695	671	723	707	748	729	776	755	590	704	8,568

* Period averages are for past 10 years

Period 1976-1984

MUNICIPAL AND INDUSTRIAL WATER USES In Acre-Feet

Tabulated below are monthly and yearly amounts of water pumped from the Rio Grande directly into municipal distribution systems of cities along the border, except for the city of Del Rio, whose main supply is derived from San Felipe Springs; and the city of El Paso, whose supply is derived mainly from deep wells. The amount shown below for the city of El Paso is Rio Grande water pumped from the Franklin Canal at the El Paso Water Plant for municipal use. Included in this amount are 41.3 acre-feet of water pumped from wells near Canutillo, Texas into the Rio Grande to be conveyed 17 miles downstream to the point of diversion at the El Paso Water Plant. Ciudad Acuna, Coahuila, whose municipal diversion from the Rio Grande started in 1971, may at times use an alternate source from Arroyo Las Vacas, which was its previous source of supply. Such use would be reflected in the tabulations below.

All Rio Grande water used by U. S. municipalities below Falcon Dam is also included in the figures shown under "Diversions from the Rio Grande - United States Side..." (by river reaches and total below Falcon Dam) on pages 64, 67, 71, 72, 74, 76, and 77 herein. Population data for all cities are estimates based on the 1980 official census except for Falcon Village (estimated by the International Boundary and Water Commission); and Del Mar and San Ignacio, which are based on utilities connections.

In the United States

Month	EL PASO (Pop. 475,400)				DEL RIO Ø (Pop. 38,500)			
	1984	Period 1975-1984			1984	Period 1975-1984		
		Average	Maximum	Minimum		Average	Maximum	Minimum
Jan.	0	50.6	337	0	459.2	479.1	600.7	396.4
Feb.	37.0	91.2	477	0	471.3	481.1	611.4	364.6
Mar.	749	374.9	1,256	0	726.1	690.4	916.8	495.2
Apr.	1,808	1,053.6	2,317	0	938.8	752.5	1,099.7	493.3
May	3,430	2,690.1	3,853	0	923.5	716.9	979.9	466.3
June	3,373	3,351.7	4,216	2,099	1,017.7	932.6	1,358.3	700.5
July	4,088	3,386.5	4,332	2,200	1,248.5	1,070.0	1,618.2	472.3
Aug.	3,275	3,236.9	3,953	2,067	1,225.2	1,069.8	1,529.5	858.6
Sept.	3,364	2,285.6	3,867	863	915.4	808.5	1,119.1	484.4
Oct.	629	263.7	629	0	532.5	614.1	842.6	451.9
Nov.	0	76.9	334	0	614.1	479.7	614.1	360.5
Dec.	0	49.0	329	0	549.2	478.6	584.5	360.3
Yearly	20,753.0	16,910.7	22,419.7	7,229	9,621.5	8,573.3	11,098.9	7,100.5

Month	EAGLE PASS (Pop. 24,000)				DEL MAR (Pop. 6,000)			
	1984	Period 1975-1984			1984	Period 1975-1984		
		Average	Maximum	Minimum		Average	Maximum	Minimum
Jan.	256.0	264.6	305.1	227.9	74.0	50.5	74.3	26.5
Feb.	280.0	262.5	331.9	225.1	82.0	51.0	82.0	26.3
Mar.	347.0	327.9	394.9	291.8	124.8	73.8	124.8	37.2
Apr.	389.0	330.5	407.7	238.2	160.3	83.0	160.3	37.4
May	379.9	330.4	390.0	270.5	141.5	83.4	141.5	46.2
June	429.4	387.8	433.0	294.3	167.5	97.0	167.5	57.0
July	446.8	471.5	582.1	281.9	177.6	111.2	192.9	37.3
Aug.	466.3	475.1	564.3	388.7	179.6	106.4	193.4	33.2
Sept.	416.2	407.4	544.5	269.7	147.8	86.8	155.0	32.5
Oct.	300.2	359.4	506.9	269.7	97.9	73.2	109.0	36.7
Nov.	268.1	287.3	345.1	242.6	104.0	66.7	104.0	33.8
Dec.	251.2	264.3	296.8	202.1	100.2	61.0	100.2	30.3
Yearly	4,230.1	4,168.7	4,611.0	3,615.3	1,557.2	944.0	1,557.2	465.6

Month	LAREDO (Pop. 102,000)				LAREDO POWER STATION			
	1984	Period 1975-1984			1984	Period 1975-1984		
		Average	Maximum	Minimum		Average	Maximum	Minimum
Jan.	1,332.4	1,271.8	1,523.8	1,042.0	85.7	79.7	134.1	40.1
Feb.	1,338.8	1,209.8	1,421.4	1,035.8	100.8	83.6	122.7	47.8
Mar.	1,740.8	1,517.5	1,899.8	1,202.0	101.2	96.6	181.3	63.4
Apr.	2,042.1	1,600.8	2,042.1	1,015.9	120.1	103.7	143.4	63.5
May	1,908.3	1,682.3	1,908.3	1,212.0	123.4	109.0	159.0	72.2
June	2,118.4	1,905.6	2,378.8	1,607.2	139.7	134.1	170.4	84.2
July	2,262.3	2,127.0	2,693.6	1,434.1	142.1	142.3	177.8	73.7
Aug.	2,316.5	2,089.8	2,510.3	1,625.0	153.7	149.4	175.8	111.3
Sept.	1,924.3	1,754.1	2,224.3	1,292.8	90.8	120.1	147.8	75.6
Oct.	1,513.3	1,610.9	2,048.5	1,285.4	61.4	107.8	215.7	61.4
Nov.	1,501.4	1,433.3	1,693.2	931.7	30.3	76.2	125.6	30.3
Dec.	1,478.7	1,353.8	1,540.6	1,035.3	46.1	77.8	120.9	32.4
Yearly	21,477.3	19,556.7	22,595.6	15,508.2	1,195.3	1,280.3	1,686.2	915.3

Ø Includes Laughlin Air Force Base

MUNICIPAL AND INDUSTRIAL WATER USES
In Acre-Feet
In the United States

Month	RIO BRAVO (Pop. 1,580)				SAN YGNACIO (Pop. 950)			
	1984	Period			1984	Period 1975-1984		
		Average	Maximum	Minimum		Average	Maximum	Minimum
Jan.	4.5				8.6	5.6	12.2	3.5
Feb.	4.3				9.4	5.7	11.4	3.6
Mar.	4.3				13.8	7.2	14.4	4.4
Apr.	4.3				15.3	8.2	17.3	4.8
May	5.5				21.7	9.2	21.7	4.2
June	8.5				18.7	9.0	18.7	5.3
July	10.7				19.0	9.4	19.0	3.7
Aug.	21.5				15.9	9.4	16.5	5.8
Sept.	21.5				16.3	9.7	19.8	3.7
Oct.	23.0				20.2	8.2	20.2	4.2
Nov.	23.0				18.0	7.3	18.0	3.1
Dec.	4.8				17.1	7.1	17.1	3.1
Yearly	135.9				194.0	95.1	194.0	52.8

Month	NEW ZAPATA (Pop. 7,250)				FALCON VILLAGE (Pop. 150)			
	1984	Period 1975-1984			1984	Period 1975-1984		
		Average	Maximum	Minimum		Average	Maximum	Minimum
Jan.	77.2	56.8	92.5	42.1	8.6	9.1	10.6	8.2
Feb.	86.2	57.2	86.2	41.0	8.5	8.5	9.9	7.6
Mar.	114.3	74.8	114.3	50.8	10.7	10.5	11.5	8.5
Apr.	126.5	80.2	126.5	48.1	12.3	11.2	13.8	9.8
May	93.1	77.9	120.6	47.4	11.9	11.1	12.5	9.1
June	126.6	86.3	126.6	45.7	12.5	11.3	17.6	6.6
July	119.7	92.9	125.2	43.1	11.7	12.7	18.0	8.9
Aug.	133.9	95.2	141.8	54.0	11.3	12.4	15.6	10.1
Sept.	112.4	81.4	122.3	33.1	10.7	10.1	13.0	7.0
Oct.	94.9	74.6	107.7	45.5	9.9	10.2	11.6	7.3
Nov.	83.5	67.2	95.9	40.4	9.1	9.3	10.8	6.6
Dec.	83.9	60.6	86.7	36.7	9.8	9.8	11.6	3.5
Yearly	1,252.2	905.2	1,253.2	560.9	127.0	126.2	146.9	115.2

Month	ROMA * (Pop. 3,870)				RIO GRANDE CITY (Pop. 7,070)			
	1984	Period 1975-1984			1984	Period 1975-1984		
		Average	Maximum	Minimum		Average	Maximum	Minimum
Jan.	77.5	55.7	77.5	29.1	154.9	134.0	163.1	100.8
Feb.	76.6	60.7	107.0	43.4	190.3	128.8	190.3	95.0
Mar.	96.7	66.9	96.7	42.4	177.1	152.4	177.4	118.3
Apr.	109.4	74.0	109.4	45.3	222.6	159.1	222.6	96.0
May	107.9	75.5	108.7	44.3	215.8	167.1	262.3	70.2
June	108.0	79.2	108.0	45.8	229.4	170.2	229.4	60.2
July	126.5	94.7	126.5	43.8	246.2	193.9	246.2	100.0
Aug.	126.2	85.0	126.2	38.2	251.3	195.6	268.7	48.4
Sept.	115.2	75.2	115.2	35.2	211.4	176.7	295.9	119.7
Oct.	100.5	68.4	100.5	22.3	146.1	166.7	288.7	120.3
Nov.	92.2	68.3	92.2	29.0	144.9	145.7	181.4	104.9
Dec.	89.5	62.0	89.5	25.1	109.2	136.1	159.2	106.9
Yearly	1,226.2	855.6	1,226.2	507.9	2,299.2	1,916.3	2,376.4	1,284.6

Month	BROWNSVILLE (Pop. 95,100)			
	1984	Period 1975-1984		
		Average	Maximum	Minimum
Jan.	1,355.3	1,232.2	1,467.3	1,012.0
Feb.	1,153.0	1,132.8	1,283.5	988.2
Mar.	1,373.2	1,355.4	1,501.0	1,216.8
Apr.	1,604.7	1,421.4	1,608.9	1,151.6
May	1,553.1	1,461.8	1,708.5	1,210.4
June	1,562.1	1,548.9	1,907.0	1,327.3
July	1,731.6	1,717.3	2,221.3	1,275.6
Aug.	1,715.8	1,694.2	2,093.3	1,232.8
Sept.	1,304.6	1,412.4	1,794.4	1,076.2
Oct.	1,350.3	1,444.5	1,664.5	1,218.1
Nov.	1,329.8	1,326.7	1,503.4	1,079.2
Dec.	1,271.9	1,272.4	1,411.4	1,065.0
Yearly	17,305.4	17,020.0	19,017.2	14,576.3

* Includes Los Saenz and Escobares, Texas

MUNICIPAL AND INDUSTRIAL WATER USES

In Acre-Feet

In Mexico

Month	CD. ACUNA, COAHUILA (Pop. 46,277)				PIEDRAS NEGRAS, COAHUILA (Pop. 107,723)			
	1984	Period 1975-1984			1984	Period 1975-1984		
		Average	Maximum	Minimum		Average	Maximum	Minimum
Jan.	221.3	177.7	222.1	58.4	607.9	417.5	607.9	318.2
Feb.	207.5	174.6	218.2	79.0	500.0	374.1	600.0	279.4
Mar.	221.9	193.1	226.3	96.9	654.1	432.4	654.1	350.5
Apr.	214.8	182.5	216.8	88.3	681.6	407.5	681.6	297.2
May	222.1	191.4	225.0	94.4	671.3	431.4	671.3	295.2
June	234.5	199.7	238.3	92.7	722.3	439.9	722.3	285.1
July	242.2	211.6	278.0	116.3	769.4	467.0	769.4	301.7
Aug.	250.5	222.8	279.0	144.1	854.2	521.1	854.2	427.6
Sept.	242.6	212.8	270.0	132.9	774.1	492.7	774.1	321.3
Oct.	251.2	209.5	251.2	150.1	679.9	471.8	679.9	347.5
Nov.	238.3	194.3	238.3	117.0	616.9	421.5	637.9	295.2
Dec.	239.1	191.3	239.1	103.8	629.0	421.2	629.0	327.3
Yearly	2,786.0	2,361.3	2,786.0	1,273.9	8,260.7	5,298.1	8,260.7	4,345.0

Month	NUEVO LAREDO, TAMPS. (Pop. 235,649)				NUEVA CD. GUERRERO, TAMPS. (Pop. 4,815)			
	1984	Period 1975-1984			1984	Period 1975-1984		
		Average	Maximum	Minimum		Average	Maximum	Minimum
Jan.	2,399.2	1,948.2	2,399.2	1,516.7	40.1	41.2	59.3	25.4
Feb.	2,581.4	1,819.1	2,581.4	1,496.4	36.2	39.5	50.2	27.6
Mar.	2,913.0	2,128.9	2,913.0	1,746.0	39.9	42.2	54.3	26.0
Apr.	2,831.0	2,079.7	2,831.0	1,627.4	60.0	46.6	61.0	25.5
May	2,895.4	2,307.0	2,895.4	1,736.2	39.7	44.7	60.3	23.3
June	2,932.5	2,344.1	2,932.5	1,782.2	41.3	44.0	61.1	25.6
July	2,907.4	2,494.4	2,934.6	1,964.0	37.0	44.5	59.0	25.5
Aug.	2,896.7	2,534.9	2,933.5	2,070.2	38.8	44.8	53.2	35.8
Sept.	2,821.5	2,321.8	2,821.5	1,856.0	37.4	39.4	49.2	26.1
Oct.	2,621.8	2,332.3	2,733.4	1,775.0	33.4	42.5	54.8	23.0
Nov.	2,151.3	2,212.2	2,850.0	1,689.8	34.6	40.8	56.7	22.8
Dec.	2,367.7	2,093.1	2,736.1	1,484.5	33.1	38.5	58.5	22.5
Yearly	32,319.9	26,615.7	32,319.9	22,148.8	471.5	508.7	616.8	311.2

Month	CD. MIER, TAMPS. (Pop. 6,878)				CD. MIGUEL ALEMAN, TAMPS. (Pop. 18,819)			
	1984	Period 1975-1984			1984	Period 1975-1984		
		Average	Maximum	Minimum		Average	Maximum	Minimum
Jan.	55.5	45.4	69.1	32.3	76.0	48.0	76.0	36.8
Feb.	57.1	35.5	57.1	11.2	73.8	52.2	109.3	34.0
Mar.	60.4	47.8	76.5	28.7	106.4	62.8	119.4	42.4
Apr.	61.0	45.6	61.0	34.3	103.0	60.1	106.0	41.5
May	59.7	48.5	59.7	35.0	119.4	64.9	119.4	42.0
June	57.4	45.9	57.5	36.0	119.7	68.3	119.7	47.3
July	64.5	47.9	73.6	30.8	121.6	69.0	121.6	47.2
Aug.	63.2	48.9	63.2	33.2	112.9	69.4	112.9	49.2
Sept.	58.5	43.7	58.5	33.0	109.3	64.7	111.4	47.4
Oct.	60.2	51.0	101.3	35.0	97.7	62.7	108.7	43.7
Nov.	49.7	46.7	72.2	30.3	94.5	61.9	107.2	46.2
Dec.	57.2	44.8	60.6	33.6	86.8	54.2	86.8	38.4
Yearly	704.4	551.8	704.4	437.7	1,221.1	738.2	1,245.7	544.5

STORED WATER IN LARGE RESERVOIRS OF THE RIO GRANDE BASIN

In Thousands of Acre-Feet

Data are presented below for all storage reservoirs in the Rio Grande Basin in the United States and Mexico that exceed 15,000 acre-feet in capacity, except San Esteban Reservoir on Alamito Creek which, according to the Texas Water Development Board, originally had a capacity of 18,800 acre-feet; Sanchez Reservoir on Culebra Creek that had a capacity, in 1980, of 103,200 acre-feet; and Storrie Reservoir on Gallinas Creek that had a capacity, in 1983, of 23,300 acre-feet. There are no monthly storage data available for these reservoirs. Also presented on pages 85 and 86 are data for International Amistad and Falcon Reservoirs on the Rio Grande. The monthly figures represent the water in storage on the last day of each month, in thousands of acre-feet. The capacities indicated are at spillway level. Storage figures greater than the capacity indicate that the water surface was above spillway level. Monthly storage data for Sanchez Reservoir is available from 1926 through 1980; and for Storrie Reservoir, from 1939 through 1983.

The reservoirs and the agencies providing the data are: Rio Grande, Continental, Santa Maria, Terrace, Mountain Home, and Platoro from the State of Colorado, Division of Water Resources; Abiquiu, Cochiti, and Santa Rosa from the United States Corps of Engineers; Costilla, Bluewater, Lake Sumner, McMillan, and Avalon from the United States Geological Survey; Heron, El Vado, Elephant Butte, and Caballo from the United States Bureau of Reclamation; Red Bluff from the Red Bluff Water Power Control District; Delta from the Willacy County Water Control and Improvement District No. 1; La Boquilla, La Colina, and Rosetilla from the Federal Power Commission of Mexico; Francisco I. Madero, Chihuahua, Luis L. Leon, Centenario, San Miguel, Venustiano Carranza, Laguna de Salinillas, La Boca, Marte R. Gomez, Culebron, Villa Cardenas, and Palto Blanco from the Ministry of Agriculture and Hydraulic Resources of Mexico; Lake Casa Blanca, Amistad Reservoir (International) and Falcon Reservoir (International) from the International Boundary and Water Commission.

In the United States

Month	RIO GRANDE (Capacity 51.1)		CONTINENTAL (Capacity 22.7)		SANTA MARIA (Capacity 45.1)		TERRACE (Capacity 17.2)		MOUNTAIN HOME (Capacity 18.6)	
	1984	# Average 1927-1984	1984	# Average 1928-1984	1984	# Average 1928-1984	1984	# Average 1925-1984	1984	# Average 1924-1984
Jan.	19.0	14.3	2.6	4.7	7.9	7.0	7.1	3.9	6.3	3.6
Feb.	20.9	15.5	3.3	5.1	8.1	7.4	7.9	4.2	6.5	3.9
Mar.	22.4	16.8	4.0	5.5	8.4	8.2	10.6	4.6	6.9	4.4
Apr.	26.4	17.2	4.9	6.1	8.9	9.3	11.3	5.5	7.3	4.8
May	53.5	21.5	13.1	7.8	18.1	12.3	15.2	7.0	10.1	6.4
June	49.0	22.7	15.5	8.1	19.7	13.9	13.4	8.2	10.3	6.7
July	23.4	13.6	15.5	5.5	10.9	9.6	9.8	5.7	6.5	4.9
Aug.	22.4	8.0	11.9	3.7	7.0	5.7	5.2	3.7	3.4	3.1
Sept.	23.2	8.2	11.3	3.7	7.0	5.5	3.7	3.2	2.8	2.7
Oct.	23.5	9.1	11.2	3.5	7.0	5.7	6.0	3.3	3.2	2.8
Nov.	26.5	11.6	5.9	3.8	13.1	6.3	6.5	3.4	3.7	3.1
Dec.	28.8	13.2	6.9	4.3	13.3	6.8	7.9	3.8	4.0	3.3
Avg.	28.2	14.3	8.8	5.2	10.8	8.1	8.7	4.7	5.9	4.1
Max.	53.5	53.5	15.5	26.7	19.7	42.1	15.2	17.7	10.3	16.4
Min.	19.0	0	2.6	0	7.0	0	3.7	0	2.8	0

Month	PLATORO (Capacity 60.0)		COSTILLA (Capacity 15.7)		HERON (Capacity 401.3)		EL VADO (Capacity 195.5)		ABIQUIU (Capacity 1,212.0)	
	1984	Average 1952-1984	1984	# Average 1922-1984	1984	Average 1971-1984	1984	Average 1935-1984	1984	Average 1965-1984
Jan.	14.2	9.4	9.9	4.4	353.4	179.8	129.6	45.1	114.8	20.8
Feb.	14.2	9.2	10.6	4.8	334.4	178.8	129.6	43.1	133.4	21.6
Mar.	14.2	9.4	10.9	5.3	316.6	177.6	139.0	43.9	143.0	22.4
Apr.	14.2	10.0	8.4	6.4	327.6	183.8	138.8	76.7	141.4	27.6
May	33.8	12.1	13.1	8.2	373.8	213.8	145.8	114.6	234.0	65.9
June	34.0	17.9	11.5	7.7	400.6	243.1	140.1	106.6	166.0	57.6
July	34.0	16.6	8.4	5.1	400.7	247.4	137.0	90.0	156.0	45.1
Aug.	34.0	15.5	5.1	3.4	400.8	246.0	129.6	70.8	149.9	44.2
Sept.	34.0	15.6	3.7	3.0	385.6	243.2	124.8	59.3	148.7	44.5
Oct.	34.0	15.4	4.7	3.3	386.0	243.1	125.2	55.2	148.0	43.2
Nov.	34.1	11.4	5.4	3.7	375.1	241.3	125.2	46.6	154.2	33.1
Dec.	34.0	11.4	5.9	4.1	362.7	207.9	125.4	46.5	159.3	30.1
Avg.	27.4	12.8	8.1	5.0	368.1	217.2	132.5	66.5	154.1	38.0
Max.	34.1	54.0	13.1	15.1	400.8	401.1	145.8	203.5	234.0	234.0
Min.	14.2	0	3.7	0	316.6	0.6	124.8	0	114.8	0

Some months missing

STORED WATER IN LARGE RESERVOIRS OF THE RIO GRANDE BASIN

In Thousands of Acre-Feet

In the United States

Month	COCHITI (Capacity 505.7)		BLUEWATER (Capacity 43.5)		ELEPHANT BUTTE (Capacity 2,110.3)		CABALLO (Capacity 331.5)		STORRIE (Capacity 23.3)	
	1984	# Average 1973-1984	1984	# Average 1927-1984	1984	Average 1915-1984	1984	# Average 1938-1984	1984	# Average 1939-1984
	Jan.	45.9	39.2	29.3	7.9	1,324.2	744.0	84.5	94.5	
Feb.	45.9	39.1	29.3	3.5	1,315.0	747.9	109.2	117.5		
Mar.	45.7	39.2	30.1	12.2	1,321.6	729.3	62.1	95.3		
Apr.	46.6	40.6	31.7	15.8	1,329.0	720.5	82.1	94.2		
May	75.4	50.3	29.0	14.2	1,472.9	808.8	103.6	99.1		
June	46.3	53.7	25.7	11.9	1,577.9	839.6	123.5	85.3		
July	47.9	42.8	22.8	10.4	1,510.6	786.5	86.3	66.5		
Aug.	47.7	42.9	21.1	9.3	1,510.6	732.8	60.1	39.4		
Sept.	47.4	42.8	19.7	8.8	1,467.7	710.0	11.9	27.6		
Oct.	47.2	43.5	19.7	8.5	1,492.3	710.9	23.2	40.5		
Nov.	47.3	40.4	19.4	8.3	1,548.4	729.6	26.7	54.3		
Dec.	47.3	41.3	19.6	8.1	1,610.5	750.8	40.4	72.4		
Avg.	49.2	43.0	24.8	10.3	1,456.7	750.9	67.8	73.9		
Max.	75.4	175.2	31.7	47.1	0 1,610.5	0 2,302.8	0 124.8	0 346.6		
Min.	45.7	3.6	19.4	0	0 1,291.4	0 3.3	0 9.7	0 0.1		

Month	SANTA ROSA (Capacity 447.1)		LAKE SUMNER (Capacity 101.6)		McMILLAN & AVALON (Capacity 37.4)		RED BLUFF (Capacity 310.0)		LAKE CASA BLANCA (Capacity 19.1)	
	1984	Average 1980-1984	1984	# Average 1937-1984	1984	# Average 1908-1984	1984	# Average 1936-1984	1984	Average 1962-1984
Jan.	12.5	17.5	24.2	62.3	28.5	25.7	46.8	91.6	9.2	13.2
Feb.	13.5	17.8	23.2	66.3	26.3	25.9	46.7	93.1	9.0	12.9
Mar.	14.2	18.6	27.5	55.9	21.1	25.4	45.8	90.5	3.6	12.7
Apr.	17.2	22.0	24.8	48.4	4.8	16.9	43.1	78.8	7.9	12.8
May	16.8	23.9	10.5	49.4	22.4	19.0	43.0	80.6	7.4	13.7
June	25.4	33.1	11.8	44.2	17.4	18.1	48.0	81.0	6.5	13.7
July	16.6	16.0	12.4	42.0	1.8	17.6	47.6	72.3	6.8	13.0
Aug.	10.2	22.2	14.9	46.0	35.5	16.6	93.2	69.1	6.4	13.3
Sept.	16.7	18.8	21.0	48.0	21.7	17.8	89.1	73.2	5.9	14.4
Oct.	19.4	20.1	22.1	50.6	21.0	19.5	91.6	81.6	6.6	13.9
Nov.	21.1	20.8	37.3	53.4	26.0	21.3	91.2	84.5	5.5	13.6
Dec.	22.9	21.6	32.8	58.0	34.5	24.3	91.1	88.4	6.4	13.3
Avg.	17.2	21.4	21.4	52.0	21.8	20.7	64.8	82.1	7.3	13.4
Max.	25.4	71.6	32.8	156.3	35.5	35.5	93.2	327.5	9.2	28.2
Min.	10.2	0	10.5	0.4	1.8	0	43.0	10.0	5.9	3.5

Month	DELTA LAKE (Capacity 25.0)		TOTAL IN U. S. RESERVOIRS (Capacity 5,971.4)								
	1984	# Average 1939-1984								1984	Estimated ! Average
Jan.	17.4	15.4								2,287.3	1,404.3
Feb.	15.9	14.8								2,307.9	1,437.4
Mar.	13.8	14.1								2,256.5	1,391.3
Apr.	15.8	14.2								2,292.2	1,411.6
May	17.4	14.9								2,708.9	1,648.5
June	14.8	14.8								2,757.4	1,687.9
July	15.7	14.8								2,570.7	1,525.4
Aug.	14.6	13.8								2,583.6	1,409.5
Sept.	18.1	15.1								2,464.0	1,365.4
Oct.	16.5	15.3								2,508.5	1,389.0
Nov.	15.8	15.3								2,579.4	1,405.8
Dec.	17.4	14.9								2,671.1	1,424.5
Avg.	16.1	14.8								4,499.8	1,458.4
Max.	18.1	22.6								2,757.4	
Min.	13.3	0								2,266.5	

Some months missing 0 Daily extremes ! Totals of period averages in all reservoirs

STORED WATER IN LARGE RESERVOIRS OF THE RIO GRANDE BASIN

In Thousands of Acre-Feet

In Mexico

Month	LA BOQUILLA (Capacity 2,417.5)		LA COLINA (Capacity 19.5)		ROSETILLA (Capacity 15.4)		FRANCISCO I. MADERO (Capacity 232.1)		CHIHHUAHUA (Capacity 25.9)	
	1934	# Average 1914-1934	1934	Average 1940-1934	1934	Average 1940-1934	1934	# Average 1948-1934	1934	Average 1961-1934
Jan.	1,493.5	1,495.2	19.9	18.1	13.9	12.7	100.3	219.9	1.4	8.5
Feb.	1,441.8	1,459.2	20.1	18.5	13.9	12.6	102.6	215.4	1.1	8.2
Mar.	1,315.0	1,405.7	20.2	18.6	13.9	12.0	98.8	201.2	.5	7.7
Apr.	1,167.4	1,330.7	20.3	19.0	13.9	11.8	87.0	168.4	.2	7.3
May	1,045.3	1,260.9	20.1	18.7	13.9	11.9	68.7	139.8	.2	6.6
June	1,281.7	1,182.9	19.8	18.9	13.9	12.1	156.1	124.2	1.8	5.2
July	1,501.2	1,216.1	19.9	18.9	13.9	12.1	191.9	135.8	3.1	6.3
Aug.	2,011.9	1,385.0	19.9	18.6	13.9	12.9	275.2	172.1	5.4	7.6
Sept.	2,077.0	1,559.1	20.0	18.3	13.9	13.2	249.3	213.6	5.0	9.9
Oct.	2,079.2	1,568.9	19.7	18.1	13.9	13.1	253.6	221.1	4.7	9.7
Nov.	2,071.8	1,536.4	19.8	16.5	13.9	12.5	254.8	221.7	4.5	9.3
Dec.	2,162.5	1,524.1	19.8	18.3	13.9	13.0	258.9	222.9	4.3	8.9
Avg.	1,637.4	1,410.4	20.0	18.4	13.9	12.5	174.8	138.0	2.7	8.0
Max.	2,162.5	2,758.1	20.3	22.5	13.9	19.4	275.2	356.6	5.4	26.5
Min.	1,045.3	16.9	19.7	11.6	13.9	0	58.7	1.4	0.2	0.2

Month	LUIS L. LEON (Capacity 639.1)		CENTENARIO and SAN MIGUEL (Capacity 19.9)		VENUSTIANO CARRANZA (Capacity 1,122.3)		LAGUNA DE SALINILLAS (Capacity 15.4)		RODRIGO GOMEZ (Capacity 33.2)	
	1934	Average 1968-1934	1934	Average 1934-1934	1934	Average 1930-1934	1934	Average 1931-1934	1934	Average 1963-1934
Jan.	307.6	405.2	19.8	13.5	414.4	487.6	7.1	7.5	32.3	28.3
Feb.	293.3	400.2	19.5	13.4	380.0	467.2	8.4	9.2	34.0	28.3
Mar.	287.6	374.4	16.9	10.5	305.5	441.7	10.2	7.4	32.2	27.5
Apr.	275.0	341.0	11.3	8.9	258.2	428.7	12.3	8.8	28.6	26.5
May	253.2	313.3	14.4	9.5	205.8	410.3	10.9	8.3	29.7	26.2
June	302.1	309.5	16.1	8.1	216.2	390.2	3.9	3.0	28.2	25.9
July	286.5	319.5	14.8	7.5	193.4	398.1	13.6	7.6	26.3	25.8
Aug.	288.9	327.8	14.5	8.2	178.8	403.6	12.5	7.7	23.6	26.3
Sept.	285.4	388.1	14.3	10.2	173.2	453.1	11.3	8.4	28.1	28.4
Oct.	291.5	413.8	14.3	12.4	181.1	437.7	10.4	7.8	29.7	29.6
Nov.	302.9	419.5	16.5	12.8	175.0	495.7	9.0	7.2	31.2	29.5
Dec.	310.5	427.2	16.5	13.2	147.0	492.8	9.7	7.1	29.5	29.2
Avg.	291.3	370.0	15.7	10.7	235.7	446.4	10.3	8.0	29.5	27.6
Max.	Ø 325.2	Ø 753.1	19.8	20.7	Ø 423.8	Ø 1,167.8	Ø 14.0	15.8	34.0	36.8
Min.	Ø 263.0	Ø 3.8	11.3	0	Ø 147.0	* 1.0	Ø 5.1	0	23.6	0

Month	MARTE R. GOMEZ (Capacity 889.3)		CULEBRON and VILLA CARDENAS (Capacity 90.0)		PALITO BLANCO (Capacity 124.0)		TOTAL IN MEXICAN RESERVOIRS (Capacity 5,744.1)	
	1934	# Average 1943-1934	1934	# Average 1939-1934	1934	Average 1942-1934	1934	Estimated ! Average
Jan.	856.3	621.7	0	28.4	0	29.5	3,267.0	3,376.2
Feb.	895.0	579.6	0	26.2	0	25.7	3,209.7	3,263.7
Mar.	872.1	552.0	0	24.5	0	25.4	2,972.9	3,109.7
Apr.	728.7	510.3	0	25.7	0	23.5	2,603.9	2,910.6
May	643.1	474.1	0	27.3	0	23.6	2,315.3	2,731.1
June	583.8	472.6	0	28.8	0	25.6	2,633.6	2,613.0
July	577.4	463.7	0	25.4	0	24.7	2,842.0	2,661.5
Aug.	528.7	502.7	0	27.4	0	22.9	3,373.3	2,923.8
Sept.	646.5	625.9	0	33.5	0	32.4	3,524.0	3,394.1
Oct.	684.5	565.7	0	24.8	0	35.9	3,582.6	3,518.6
Nov.	639.1	567.7	0	39.3	0	34.4	3,538.5	3,492.5
Dec.	639.1	655.3	0	32.3	0	33.0	3,650.8	3,437.3
Avg.	699.9	566.8	0	28.5	0	28.1	3,131.1	3,123.4
Max.	Ø 902.2	Ø 1,455.4	0	116.8	0	140.1	3,650.8	
Min.	Ø 525.5	** 17.8	0	0	0	0	2,315.3	

Some months missing Ø Daily extremes
! Total of period averages in all reservoirs

* Minimum since full reservoir in 1932
** Minimum since full reservoir in 1947

STORED WATER IN LARGE RESERVOIRS OF THE RIO GRANDE BASIN

International Amistad Reservoir

Amistad Dam is the second of the major international storage dams constructed on the Rio Grande as authorized by the Water Treaty of 1944 between the United States and Mexico. It is located at mile 573.9, 12.9 river miles upstream from Del Rio, Texas and Cd. Acuna, Coahuila.

Maximum storage for period of record: 4,859,900 acre-feet on September 22, 1974 with an elevation of 1,135.66 feet above mean sea level, U. S. C. & G. S. datum. The elevation-area-capacity table, based on the 1980 survey, became effective on November 1, 1981.

Storage Capacities (1980 Survey)

Elevation	Description	At Indicated Elevation		Between Indicated Elevations	
		Reservoir Capacity Acre-Feet	Reservoir Area Acres	Storage Volume Acre-Feet	Type of Storage
998.0	Original River Bed at Dam Axis	0	0	0	
930.0	Lowest Outlet (United States Penstocks)	0	0	3,383,848	Silt & Conservation
1,117.0	Top of Conservation Storage *	3,383,848	64,860		
1,140.4	Top of Spillway Gates	5,128,000	84,358	336,000	Surcharge
1,144.3	Maximum Water Surface	5,464,000	88,127		

Storage in Thousands of Acre-Feet at 24:00 Hours 1984 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	2,684.4	2,723.1	2,718.4	2,635.3	2,484.6	2,213.8	2,297.7	2,221.8	2,210.7	2,210.7	2,342.1	2,392.2
2	2,687.2	2,723.1	2,717.5	2,629.8	2,480.3	2,213.8	2,299.3	2,224.3	2,212.3	2,212.3	2,342.1	2,393.9
3	2,687.2	2,723.1	2,716.6	2,620.8	2,459.5	2,215.4	2,299.3	2,213.8	2,213.8	2,213.8	2,343.7	2,393.9
4	2,687.2	2,723.1	2,716.6	2,612.7	2,436.4	2,217.0	2,296.8	2,209.1	2,212.3	2,215.4	2,345.4	2,397.3
5	2,687.2	2,723.1	2,715.7	2,601.9	2,414.2	2,218.6	2,296.0	2,205.1	2,210.7	2,217.8	2,345.4	2,395.6
6	2,688.1	2,721.2	2,712.9	2,587.6	2,392.2	2,221.8	2,294.4	2,199.6	2,208.3	2,219.4	2,345.4	2,395.6
7	2,688.1	2,719.4	2,712.0	2,576.0	2,375.4	2,219.4	2,295.2	2,196.4	2,205.9	2,222.6	2,347.9	2,393.9
8	2,689.0	2,719.4	2,711.1	2,563.6	2,362.1	2,219.4	2,294.4	2,191.7	2,203.6	2,225.8	2,349.6	2,394.8
9	2,689.9	2,719.4	2,708.3	2,548.5	2,347.1	2,219.4	2,292.7	2,187.0	2,201.2	2,232.2	2,351.2	2,395.6
10	2,690.8	2,719.4	2,708.3	2,531.8	2,330.5	2,218.6	2,290.3	2,183.8	2,199.6	2,255.5	2,352.1	2,395.6
11	2,690.8	2,721.2	2,706.5	2,515.1	2,314.9	2,216.2	2,287.1	2,183.1	2,196.4	2,278.9	2,352.9	2,397.3
12	2,692.7	2,719.4	2,708.3	2,500.2	2,297.7	2,214.6	2,285.4	2,181.5	2,194.8	2,287.1	2,352.9	2,398.1
13	2,693.6	2,720.3	2,706.5	2,484.2	2,281.4	2,215.4	2,282.2	2,181.5	2,191.7	2,292.7	2,353.7	2,399.8
14	2,695.4	2,722.1	2,705.5	2,492.4	2,259.2	2,215.4	2,277.3	2,185.4	2,187.8	2,299.3	2,357.1	2,402.4
15	2,697.3	2,724.0	2,704.6	2,489.8	2,252.2	2,213.8	2,273.2	2,185.5	2,189.3	2,305.9	2,358.7	2,402.4
16	2,699.1	2,725.8	2,702.8	2,488.9	2,241.8	2,213.8	2,270.0	2,189.5	2,187.8	2,309.9	2,360.4	2,402.4
17	2,701.0	2,728.6	2,700.0	2,488.1	2,233.8	2,217.3	2,265.1	2,195.4	2,196.2	2,310.8	2,363.7	2,402.4
18	2,703.7	2,730.5	2,697.3	2,489.8	2,226.6	2,218.6	2,261.1	2,185.4	2,185.2	2,315.7	2,365.4	2,402.4
19	2,705.5	2,732.3	2,693.6	2,488.1	2,219.4	2,221.8	2,256.3	2,187.8	2,186.2	2,315.7	2,366.2	2,404.1
20	2,705.5	2,732.3	2,691.8	2,491.6	2,211.5	2,230.6	2,252.2	2,191.7	2,185.2	2,319.0	2,369.6	2,404.9
21	2,704.6	2,732.3	2,687.2	2,491.6	2,205.9	2,249.0	2,245.8	2,194.0	2,185.4	2,320.6	2,370.4	2,405.8
22	2,708.3	2,732.3	2,683.5	2,490.7	2,205.9	2,263.5	2,242.6	2,196.4	2,184.6	2,321.4	2,370.4	2,405.8
23	2,710.2	2,731.4	2,680.8	2,490.7	2,208.3	2,272.4	2,239.6	2,193.0	2,183.8	2,321.4	2,371.2	2,405.8
24	2,713.8	2,730.5	2,676.2	2,490.7	2,209.1	2,275.7	2,234.6	2,199.6	2,183.8	2,322.3	2,376.3	2,405.8
25	2,715.7	2,728.6	2,672.6	2,491.6	2,208.3	2,278.1	2,245.0	2,201.2	2,183.8	2,325.6	2,378.0	2,405.8
26	2,717.5	2,726.8	2,668.9	2,492.4	2,208.3	2,280.6	2,242.6	2,202.8	2,183.1	2,326.4	2,382.2	2,404.1
27	2,720.3	2,724.0	2,666.2	2,490.7	2,209.9	2,283.0	2,239.4	2,204.3	2,182.3	2,328.9	2,382.2	2,404.1
28	2,722.1	2,721.2	2,660.7	2,489.8	2,213.1	2,288.7	2,237.0	2,205.9	2,200.4	2,333.0	2,383.8	2,407.5
29	2,724.9	2,719.4	2,653.4	2,488.1	2,215.4	2,291.9	2,234.6	2,207.5	2,208.3	2,355.5	2,388.9	2,406.6
30	2,724.0		2,646.2	2,485.5	2,215.4	2,296.0	2,230.6	2,209.1	2,209.9	2,337.1	2,390.6	2,410.3
31	2,724.9		2,642.5		2,213.8		2,226.6	2,210.7		2,339.6		2,415.9

Month	1984							Period 1969-1984		
	MOMENTARY MAXIMUM			MOMENTARY MINIMUM			Average Storage	Mean Monthly Storage		
	Elevation	Storage	Day	Elevation	Storage	Day		Average	Maximum	Minimum
Jan.	1,106.14	2,724.9	129	1,105.41	2,634.4	1	2,701.6	3,041.9	4,030.4	722.5
Feb.	1,106.27	2,732.3	119	1,106.04	2,719.4	1	2,724.7	3,024.9	4,014.7	787.7
Mar.	1,106.04	2,719.4	1	1,104.66	2,642.5	31	2,693.3	2,994.0	4,016.4	951.7
Apr.	1,104.66	2,642.5	1	1,101.76	2,485.5	30	2,524.9	2,977.7	3,981.0	962.8
May	1,101.76	2,485.5	1	1,095.23	2,205.9	121	2,298.5	2,937.5	3,829.5	1,033.6
June	1,098.06	2,296.0	30	1,096.39	2,213.8	1	2,237.8	2,886.3	3,807.8	914.4
July	1,098.13	2,299.3	1	1,095.65	2,226.6	31	2,267.2	2,854.9	3,847.3	949.5
Aug.	1,096.55	2,226.6	1	1,095.72	2,181.5	112	2,197.4	2,926.7	3,941.3	963.0
Sept.	1,096.39	2,213.8	3	1,095.73	2,182.3	27	2,195.9	2,970.7	4,117.2	1,034.0
Oct.	1,098.93	2,339.5	31	1,096.31	2,209.9	1	2,296.2	3,099.8	4,471.2	1,207.2
Nov.	1,099.93	2,390.6	30	1,098.93	2,339.6	1	2,362.0	3,125.4	4,241.4	1,253.2
Dec.	1,100.43	2,415.9	31	1,099.93	2,390.6	1	2,401.4	3,136.5	4,029.7	1,290.4
Yearly	1,106.27	2,732.3		1,095.72	2,181.5		2,405.8	2,993.0	3,950.8	1,047.5

* When necessary, the Commission may set temporary conservation levels † And other days

STORED WATER IN LARGE RESERVOIRS OF THE RIO GRANDE BASIN

International Falcon Reservoir

Falcon Dam is the lowermost of the major international storage dams authorized for construction on the Rio Grande by the Water Treaty of 1944 between the United States and Mexico and was the first dam constructed. It is located 86.1 river miles downstream from the old international highway bridge between Laredo, Texas and Nuevo Laredo, Tamaulipas and 274.8 river miles upstream from the Gulf of Mexico.

Maximum storage for period of record: 3,490,600 acre-feet on October 19, 1958 with an elevation of 308.11 feet above mean sea level, U. S. C. & G. S. datum.

Storage Capacities

(1971-1972 Survey)

Elevation	Description	At Indicated Elevation		Between Indicated Elevations	
		Reservoir Capacity Acre-Feet	Reservoir Area Acres	Storage Volume Acre-Feet	Type of Storage
175.0	Original River Bed at Dam Axis	0	0		
203.3	Lowest Outlet (Mexican Penstock)	57	89	67	Dead
301.2	Top of Conservation Storage *	2,567,588	36,343	2,557,521	Silt & Conservation
306.7	Top of Spillway Gates	3,177,093	98,512	509,505	Ordinary Flood
314.2	Maximum Water Surface	3,978,416	115,406	801,323	Surcharge

Storage in Thousands of Acre-Feet at 24:00 Hours 1984 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1,235.9	1,154.5	1,227.4	1,246.6	827.9	939.3	698.0	718.2	656.7	778.9	890.6	861.1
2	1,236.9	1,157.4	1,228.4	1,247.6	802.8	834.6	697.3	717.8	668.8	782.3	893.0	859.5
3	1,238.5	1,159.4	1,228.9	1,245.0	779.6	827.9	691.1	717.1	674.2	784.5	896.3	859.5
4	1,239.5	1,164.2	1,232.4	1,242.5	753.6	820.1	687.6	715.0	678.3	785.4	899.6	857.5
5	1,239.0	1,168.6	1,242.0	1,240.0	731.0	812.8	685.9	714.2	633.8	738.7	900.4	855.1
6	1,238.0	1,171.5	1,234.4	1,235.9	719.2	805.1	685.2	710.3	690.4	790.6	900.0	855.1
7	1,236.4	1,175.4	1,229.4	1,232.9	718.5	796.7	682.4	708.2	696.3	793.3	900.0	854.7
8	1,233.9	1,179.8	1,233.4	1,232.4	719.2	785.4	682.4	705.4	701.2	796.7	898.7	855.9
9	1,231.4	1,184.2	1,233.9	1,229.4	715.0	777.0	681.7	703.3	706.5	798.2	898.7	857.1
10	1,229.4	1,188.1	1,235.4	1,230.9	707.9	769.5	679.3	702.9	710.7	797.8	897.5	859.5
11	1,225.9	1,193.5	1,237.5	1,227.4	697.3	761.7	680.4	700.5	714.6	797.8	896.3	860.7
12	1,219.4	1,198.0	1,240.0	1,225.9	686.6	756.2	690.0	697.0	718.5	800.1	896.3	861.9
13	1,209.4	1,200.0	1,239.5	1,220.9	675.9	752.1	680.7	696.6	722.4	829.1	895.1	863.1
14	1,198.5	1,202.9	1,240.5	1,221.4	679.3	747.7	680.7	694.9	726.4	848.8	894.2	863.5
15	1,188.1	1,209.4	1,243.5	1,215.9	683.8	741.5	682.1	692.1	730.3	862.7	893.8	865.5
16	1,178.3	1,211.9	1,242.5	1,200.0	690.7	735.7	682.8	688.0	734.3	874.3	892.2	856.7
17	1,170.5	1,215.4	1,241.0	1,174.9	700.8	731.0	684.2	690.7	737.5	890.4	890.2	867.1
18	1,162.3	1,220.4	1,243.5	1,156.5	726.4	727.8	684.8	687.5	740.8	884.9	889.7	867.1
19	1,155.5	1,221.9	1,245.0	1,133.0	757.7	727.4	685.9	657.4	744.5	895.3	896.5	867.1
20	1,149.7	1,223.4	1,242.5	1,109.8	792.1	727.4	688.3	652.7	748.5	886.5	895.7	867.5
21	1,143.0	1,222.9	1,244.5	1,085.5	809.3	724.2	691.1	659.3	749.6	888.1	882.8	869.9
22	1,137.3	1,222.4	1,244.0	1,061.2	823.2	720.6	693.5	657.6	750.3	888.9	880.3	870.7
23	1,134.9	1,222.4	1,247.6	1,034.6	837.3	718.5	696.6	654.9	751.0	888.9	879.6	871.5
24	1,133.0	1,221.9	1,247.1	1,005.2	848.0	715.4	699.4	653.5	751.4	887.7	877.2	873.5
25	1,133.9	1,221.9	1,245.0	978.7	853.5	716.4	700.1	653.6	752.9	886.5	875.5	877.6
26	1,135.8	1,222.9	1,250.6	953.4	855.9	713.9	702.2	654.3	757.7	886.1	873.5	873.0
27	1,133.7	1,223.9	1,251.1	925.2	857.1	711.1	705.4	656.6	758.4	885.7	871.5	879.5
28	1,140.6	1,224.9	1,251.1	899.5	857.1	706.8	709.6	658.6	759.5	884.9	867.5	881.2
29	1,143.0	1,226.9	1,249.6	874.3	855.5	706.1	713.2	661.0	767.7	886.5	865.1	884.5
30	1,149.7	1,228.4	1,248.1	854.7	848.8	701.5	716.4	663.0	772.9	888.1	863.1	893.6
31	1,153.6	1,248.6			843.6		718.2	665.0		888.9		889.7

Month	1984							Period 1954-1984		
	MOMENTARY MAXIMUM			MOMENTARY MINIMUM			Average Storage	Mean Monthly Storage		
	Elevation	Storage	Day	Elevation	Storage	Day		Average	Maximum	Minimum
Jan.	280.17	1,239.5	4	278.00	1,133.0	24	1,185.8	2,180.0	3,070.3	218.7
Feb.	279.92	1,226.9	29	273.43	1,153.6	1	1,200.3	2,078.0	3,009.6	155.2
Mar.	280.40	1,251.1	127	279.92	1,226.9	1	1,240.9	2,060.4	2,990.3	226.7
Apr.	280.35	1,248.6	1	271.61	954.7	30	1,131.5	1,963.5	2,954.6	325.6
May	271.67	857.1	127	265.78	575.9	13	769.5	1,430.2	2,359.9	400.1
June	271.33	843.6	1	267.52	701.5	30	753.8	1,750.1	2,739.1	273.7
July	267.99	718.2	31	266.38	679.3	10	691.8	1,576.6	2,692.7	209.9
Aug.	267.99	718.2	1	266.12	653.6	124	684.0	1,812.5	2,771.4	203.0
Sept.	269.49	772.9	31	265.46	685.0	1	725.5	1,905.7	2,871.1	255.2
Oct.	272.46	888.9	122	269.49	772.9	1	845.4	2,125.5	3,250.2	308.3
Nov.	272.74	900.4	5	271.82	863.1	30	837.7	2,192.1	3,124.5	330.9
Dec.	272.48	889.7	31	271.61	854.7	7	867.3	2,218.2	3,123.7	343.4
Yearly	280.40	1,251.1		265.12	653.6		914.2	1,937.1	2,764.2	544.3

* When necessary, the Commission may set temporary conservation levels

! And other days

QUALITY OF WATER - 1984

Rio Grande at El Paso, Texas

LOCATION: At gaging station on Courchesne Bridge at river mile 1,255.7 (2,020.8 km), 1.7 river miles (2.7 km) upstream from American Dam, and 5.5 miles (8.9 km) upstream from Paso del Norte Bridge between El Paso, Texas and Cd. Juarez, Chihuahua.

RECORDS: Chemical analyses, February 1930 through May 1977 (integrated samples taken at American Dam) and June 1977 through 1984 (grab samples taken at American Dam); biochemical analyses, September 1943 through 1972 (samples taken from Franklin Canal at El Paso, Texas) and February 1976 through 1984 (samples taken from Rio Grande at Courchesne Bridge); specific conductance, 1930 through 1932 and 1937 through 1984 (samples taken at American Dam); suspended silt (samples taken at American Dam), 1947 through 1976.

REMARKS: Sampling by International Boundary and Water Commission; chemical analyses by U.S. Geological Survey, biochemical analyses by Haskell R. Street Wastewater Treatment Plant laboratory in El Paso; specific conductance and silt determinations by International Boundary and Water Commission. Additional water quality parameters, including heavy metals, nutrients, pesticides, and biological indices, determined and published by U. S. Geological Survey.

1984	Time	Streamflow, Momentary	Specific Conductance	pH	Temper- ature	Hardness, Total (as CaCO ₃)	Hardness, Noncarbonate (as CaCO ₃)	Calcium ion (Ca), Dissolved	Magnesium ion (Mg), Dissolved
Date	Standard	Second-Foot	Micromhos	Units	Deg C	mg/L	mg/L	mg/L	mg/L
Jan. 17	0935	67.4	2,220	8.3	2.0	460	180	130	32
Feb. 16	0935	485	1,090	7.9	1.0	260	82	77	17
Mar. 21	0845	762	869	7.8	12.0	230	68	68	14
Apr. 13	0930	653	1,030	7.8	14.5	250	84	77	15
May 15	1120	645	951	7.9	20.5	240	72	72	15
June 20	1015	1,150	880	7.9	21.0	240	80	73	14
July 17	0925	852	959	8.1	21.0	240	72	74	14
Aug. 15	0855	710	1,210	8.0	21.0	290	110	85	18
Sep. 19	0905	572	1,210	7.9	17.0	290	100	86	19
Oct. 15	0915	307	1,490	7.9	10.5	330	119	96	21
Nov. 19	0850	130	2,020	7.9	3.5	470	190	140	30
Dec. 20	0830	136	2,099	8.0	3.0	520	250	150	36

1984	Sodium ion (Na), Dissolved	Sodium Absorption Ratio(SAR)	Potassium ion (K), Dissolved	Alkalinity Total (as CaCO ₃)	Sulfate ion (SO ₄), Dissolved	Chloride ion (Cl), Dissolved	Silica (SiO ₂), Dissolved	Solids Dissolved (Calculated)
Date	mg/L		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Jan. 17	320	6.5	10	280	520	270	26	1,480
Feb. 16	130	3.5	6.9	180	210	120	16	685
Mar. 21	92	2.7	5.8	160	170	82	15	543
Apr. 13	120	3.3	6.7	170	210	103	17	648
May 15	110	3.1	6.8	170	200	82	15	603
June 20	98	2.8	6.7	160	180	69	17	554
July 17	110	3.1	6.6	170	200	80	22	605
Aug. 15	150	3.9	8.3	180	260	120	22	772
Sep. 19	150	3.8	8.1	190	250	130	21	778
Oct. 15	190	4.6	8.6	220	330	160	22	950
Nov. 19	270	5.4	12	280	470	250	27	1,370
Dec. 20	290	5.5	11	270	470	250	27	1,400

1984	Temper- ature	Oxygen, Dissolved (DO)	pH	Coli- form, Fecal	Oxygen Demand, Bio- Chemical (BOD)	1984	Temper- ature	Oxygen, Dissolved (DO)	pH	Coli- form, Fecal	Oxygen Demand, Bio- Chemical (BOD)
Date	Deg C	mg/L	Units	Colonies /100 mL	mg/L	Date	Deg C	mg/L	Units	Colonies /100 mL	mg/L
Jan. 3	3.3	10.2	8.1	1,000	2.5	July 3	22.2	6.5	8.0	340	4
10	2.8	9.8	8.2	3,100	2	10	22.8	5.9	8.0	570	2
16	3.9	9.4	8.0	400	2	17	21.7	6.6	7.5	130	2
24	2.2	10.2	8.1	250	2	24	21.7	6.3	7.3	210	5
Feb. 7	2.8	9.4	8.0	2,500	2.5	Aug. 7	21.7	5.7	7.8	7	7
14	3.9	9.5	7.7	800	4.5	14	20.0	5.9	8.0	10	10
21	4.4	9.5	7.8	540	6	21	21.1	5.4	7.6	2,200	2
28	5.0	10.0	8.0	490	5.2	28	21.1	5.8	7.4	280	3
Mar. 6	5.6	10.6	8.0	800	5	Sep. 4					
13	11.7	8.4	8.0	700	4	11	17.2	6.8	7.8	700	3
20	9.4	7.8	7.8	400	4	19	17.8	6.7	8.2	1,200	6
27	7.8	7.7	7.8	690	3	25	17.2	6.8	7.9	340	3
Apr. 3	8.9	8.7	7.7	540	4	Oct. 2	13.0	6.5	8.0	1,400	6
10	10.6	8.0	8.0	550	8	9	13.3	9.2	8.2	1,140	2
17	12.2	7.5	7.1	150	6	16	8.3	8.1	8.0	27,000	2
24	14.4	8.7	7.7	400	5	23	5.6	8.4	9.2	870	3
May 1	14.4	7.4	7.9	499	3	30	7.3	8.2	7.3	2,700	3
8	10.0	5.9	7.7	6,000	4	Nov. 6	6.7	8.4	7.4	1,100	4
15	14.4	6.5	8.0	910	3	12	5.6	10.3	8.1	1,300	2
22	15.6	5.2	8.0	550	2	19	3.3	9.3	7.9	550	1
29	16.1	5.4	8.0	2,900	2	25	.5	9.6	7.5	390	3
June 5	16.1	7.2	7.6	250	2	Dec. 4	0	8.2	8.3	300	2
12	17.8	5.9	7.3	330	1	11	2.2	8.2	8.3	600	6
19						18	0.5	8.0	7.9	1,040	3
26	20.5	6.9	7.7	870	4						

QUALITY OF WATER - 1984

Rio Grande at American Dam at El Paso, Texas

SPECIFIC CONDUCTANCE OF WATER SAMPLES IN MICROMHOS/CM @ 25 DEG C - 1984

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1		2,440	1,350		1,099	1,040		1,030		1,400	2,100	
2		2,460	1,020	1,030	1,010		976	1,050		1,300	2,090	
3	2,120	2,440		1,090	1,090		965	934		1,120		2,100
4	2,140			1,110	980		977		971	1,010		2,190
5	2,130		1,060	1,120			999		992	1,050	2,110	2,020
6	2,010	2,510	930			934		768		985		
7		2,520	910	1,050	984	1,090	1,010	840	1,150		2,110	2,110
8		2,400	1,130		1,020	1,020		892			2,110	2,040
9	2,110	2,470	1,140	970	1,010		1,010	921		1,710		
10	2,070	2,550		992	1,000		1,010	818	1,100	1,760		2,120
11	2,170			978	1,000	1,010			973			
12			970	1,010	1,050	1,050	1,020		970	1,830		2,090
13		1,250	946	971		1,060	902	959	1,090	1,840		2,140
14		1,340	937		953	1,050		913	1,180		2,150	2,200
15		1,120	942		959	909				1,610	2,070	2,140
16	2,220	1,090	974	1,040	876		952	1,200		1,620	2,160	
17	2,210	1,190		1,110	841		968	1,370	1,160	1,720		2,040
18	2,120			1,130	817	840	980		1,190			2,140
19	2,070		899	1,130	830	830	923		1,210	1,880	2,150	2,180
20	2,180		894	1,010		350		1,660	1,260		2,170	2,170
21		1,140	871		904	838		1,400	1,240		2,180	2,160
22		1,110	881		947	1,020		1,290		1,850		
23	2,250	1,190	897	978	994		884	1,210		1,860		
24	2,300	1,190		961	1,040		864		1,330			2,050
25	2,280			985	915	1,110	844		1,300	1,750		
26	2,250		953	1,030		1,090	885		1,280		2,120	
27	2,310	1,240	948	946		1,040	914	817	1,290		2,020	2,060
28		1,300	945			974		881	1,270		2,170	2,110
29		1,350	942		1,010	895		1,140		1,900	2,180	
30	2,440		958	957	1,050		917			1,946	2,100	
31	2,470				1,050		1,020	1,100		1,950		2,200

Rio Grande at Riverside Canal Heading near El Paso, Texas
and Cd. Juarez, Chihuahua

LOCATION: At river mile 1,237.3 (1,991.2 km), 9.5 miles (15.3 km) downstream from the Haskell R. Street Wastewater Treatment Plant and 15.7 river miles (26.8 km) downstream from the American Dam at El Paso, Texas.

RECORDS: Biochemical analyses, February 1976 through 1984. Samples also collected quarterly and analyses made by the Texas Department of Water Resources at a location one mile upstream at Ysleta-Zaragoza Bridge, 1937 through 1972 and May 1975 through 1984.

REMARKS: Sampling by International Boundary and Water Commission. Analyses by the Haskell R. Street Wastewater Treatment Plant laboratory in El Paso.

1984	Temperature	Oxygen, Dissolved (DO)	pH	Coli-form, Fecal	Oxygen Demand, Bio-Chemical (BOD)	1984	Temperature	Oxygen, Dissolved (DO)	pH	Coli-form, Fecal	Oxygen Demand, Bio-Chemical (BOD)	
Date	Deg C	mg/L	Units	Colonies /100 mL	mg/L	Date	Deg C	mg/L	Units	Colonies /100 mL	mg/L	
Jan. 3	5.6	8.2	7.4	9,900	21	July 3	25.0	5.6	7.9	4,400	5	
10	3.9	8.9	7.5	1,200	3.5	10	25.6	5.2	7.5	380	4	
17	5.6	8.1	7.4	52	3	17	22.8	6.2	7.2	1,600	3	
24	2.8	8.3	7.3	310	13	24	21.7	6.3	6.8	5,800	5	
Feb. 7	5.6	8.2	7.2	100	7	Aug. 7	22.2	5.7	7.7	500	8	
14	5.6	8.7	7.7	550	5	14	20.6	5.8	7.0		7	
21	6.7	8.6	7.5	1,600	11.5	21	23.3	6.0	7.4	3,400	5	
28	8.3	9.1	7.6	90	5.7	28	21.1	5.7	7.5	5,900	4	
Mar. 6	6.7	9.9	8.0	590	7	Sep. 11	17.2	6.6	7.8	7,100	6	
13	12.3	7.5	7.6	1,500	4	18	18.9	5.6	7.8	1,900	9	
20	11.7	8.6	7.7	1,700	5	25	18.9	5.9	7.5	0	6	
27	9.4	8.7	7.7	550	5	Oct. 2	14.4	6.6	7.7	1,200	7	
Apr. 3	20.0	9.5	8.1	250	6	9	13.3	7.7	7.7	120	7	
10	13.9	7.6	7.5	450	5	16	8.3	6.9	8.0	14,500	9	
17	14.4	5.1	7.0	250	3	23	7.2	7.7	7.9	870	9	
24	15.6	10.0	7.4	20	8	30	10.5	5.8	7.5	520	11	
May 1	15.0	7.1	7.4	2,300	5	Nov. 6	8.9	7.4	7.7	100	8	
8	12.9	5.1	7.6	10	5	12	7.8	5.9	8.0	90	10	
15	15.6	5.3	7.4	500	5	19	4.4	8.4	8.1		11	
22	17.2	5.6	7.7	170	2	26	.5	8.1	7.7	*	15	
29	18.3	6.1	7.5	2,450	6	Dec. 4	.5	7.6	8.1	1,110	16	
June 5	17.2	8.3	7.6	226	5	11	3.9	7.2	8.1	550	17	
12	18.3	5.9	7.2	1,500		18	2.8	7.1	8.0	1,900	12	
19												
26	21.7	5.9	7.5	7,200	4							

* Too numerous to count

QUALITY OF WATER - 1984

Rio Grande above Rio Conchos near Presidio, Texas and Ojinaga, Chihuahua

LOCATION: Gaging station at river mile 966.4 (1,555.3 km); 5.1 river miles (10.5 km) upstream from the Rio Conchos.

RECORDS: Chemical analyses, February 1933 through 1981; specific conductance, 1931; 1935 through 1984.
REMARKS: Sampling by the International Boundary and Water Commission; chemical analyses by the U.S. Geological Survey; determinations for specific conductance by International Boundary and Water Commission. Results of biochemical analyses by Texas Department of Water Resources, November 1977 through 1984, available on request.

SPECIFIC CONDUCTANCE OF WATER SAMPLES IN MICROMHOS/CM @ 25 DEG C - 1984

January	February	April	June	August	September	November
3 2,940	28 3,670	17 2,710	1 3,340	1 1,710	10 2,410	5 3,270
9 2,840	March	23 2,630	11 1,890	7 2,730	18 3,350	16 3,620
17 2,920	1 4,470	30 3,100	18 734	13 1,040	24 3,460	19 3,670
23 3,030	6 3,340	May	25 1,160	17 987	October	27 3,630
30 3,170	12 3,270	1 5,220	28 1,480	21 998	2 2,950	December
February	20 3,510	7 2,030	July	22 1,020	9 2,230	4 3,660
1 2,380	26 2,580	14 1,770	3 1,340	28 1,950	17 2,410	10 3,690
6 3,370	April	21 1,630	9 1,650	September	22 2,850	18 4,070
13 3,600	3 4,090	29 2,560	17 1,890	4 1,370	November	31 3,600
21 3,180	9 3,140	29 1,210	23 1,970	5 2,520	2 3,640	

Rio Conchos near Ojinaga, Chihuahua

LOCATION: At gaging station, 1.5 river miles (2.5 km) from the confluence with the Rio Grande, which is located at river mile 961.4 (1,547.2 km).

RECORDS: Chemical analyses, February 1935 through 1981; suspended silt, 1956 through 1979, specific conductance, 1935 through 1984.

REMARKS: Sampling and determinations for suspended silt and specific conductance by the International Boundary and Water Commission; chemical analyses by the U. S. Geological Survey.

SPECIFIC CONDUCTANCE OF WATER SAMPLES IN MICROMHOS/CM @ 25 DEG C - 1984

January	February	April	June	August	October	November
2 1,530	29 1,570	18 1,710	25 1,230	24 1,010	3 1,040	14 1,540
4 1,350	March	23 1,980	27 1,190	27 911	5 979	16 1,350
6 1,490	2 1,570	25 1,930	29 1,190	29 865	8 991	19 1,430
9 1,540	5 1,500	30 1,430	July	31 842	10 960	21 1,400
11 1,530	7 1,470	May	2 1,280	September	12 1,040	23 1,410
13 1,460	22 1,410	2 1,850	4 1,250	5 1,010	15 1,090	December
16 1,260	23 1,750	4 1,920	9 1,260	7 1,140	17 1,100	3 1,490
18 1,290	26 1,530	7 1,980	13 1,280	10 1,140	19 1,250	5 1,440
February	28 1,720	9 1,770	16 972	12 1,120	22 1,360	10 1,500
2 1,360	30 1,820	11 1,710	18 968	14 1,050	24 1,350	12 1,400
6 1,200	April	June	19 962	17 1,050	26 1,300	14 1,420
8 1,280	2 1,820	6 1,290	20 963	20 1,060	29 1,320	17 1,430
10 1,250	4 1,840	8 1,940	25 972	21 1,100	31 1,390	19 1,470
13 1,210	6 2,070	11 1,820	August	24 1,050	November	21 1,450
15 1,230	11 1,940	15 1,450	15 1,350	26 904	5 1,570	26 1,490
24 1,410	13 2,050	19 976	17 1,070	28 1,030	7 1,590	28 1,470
27 1,440	16 1,880	21 987	20 1,070	October	9 1,550	31 1,460
			22 1,030	1 1,040	12 1,560	

Rio Grande below Rio Conchos near Presidio, Texas and Ojinaga, Chihuahua

LOCATION: Gaging station at river mile 949.8 (1,258.5 km); 0.4 river mile (0.6 km) downstream from Alamito Creek and 11.6 river miles (18.7 km) downstream from the Rio Conchos.

RECORDS: Specific conductance, 1956 through 1984.
REMARKS: Sampling and determinations for specific conductance by the International Boundary and Water Commission. Results of biochemical analyses by Texas Department of Water Resources, November 1977 through 1984, available on request.

SPECIFIC CONDUCTANCE OF WATER SAMPLES IN MICROMHOS/CM @ 25 DEG C - 1984

January	March	April	June	July	August	October
3 1,980	1 1,809	17 2,000	1 1,630	10 1,380	28 1,090	22 2,140
9 2,020	6 1,830	20 2,560	7 1,660	17 1,440	September	November
23 1,580	12 1,870	23 2,220	11 1,880	23 1,020	4 1,650	2 2,380
30 1,700	13 1,770	30 1,840	14 989	24 1,370	10 1,620	5 2,410
February	20 2,000	May	18 743	August	18 1,720	14 2,490
1 1,560	26 1,730	7 1,980	25 1,180	1 1,260	24 1,560	19 2,430
6 1,570	April	15 1,590	27 1,220	7 1,350	27 1,100	27 2,430
13 1,510	3 2,150	17 1,440	July	13 916	October	December
21 1,680	6 2,560	18 1,360	3 1,220	22 1,060	2 1,400	4 2,420
28 1,790	9 2,280	21 1,470	9 1,320	24 1,070	9 1,310	10 2,420
	13 2,470	29 1,560			17 1,600	24 2,420

QUALITY OF WATER - 1984

Rio Grande at Foster Ranch near Langtry, Texas and Rancho Santa Rosa, Coahuila

LOCATION: Gaging station at river mile 657.5 (1,058.2 km), about 12.3 miles (19.8 km) west of Langtry, Texas.
 RECORDS: Chemical analyses, March 1969 through 1970 and October 1974 through 1984; biochemical, October 1974 through 1984; suspended silt, 1969 through 1984; specific conductance, 1969 through 1981, 1983.
 REMARKS: Sampling and analyses by U. S. Geological Survey; sampling and determinations for suspended silt and specific conductance by the International Boundary and Water Commission. Additional water quality parameters, including heavy metals, nutrients, pesticides, and biological indices, determined and published by the U. S. Geological Survey.

1984 Date	Time Std.	Stream- flow, Momen- tary Sec.-Ft.	Specific Conduct- ance Micronhos	pH Units	Temper- ature Deg C	Hard- ness, Total (as CaCO ₃)	Hard- ness, Noncar- bonate (as CaCO ₃)	Calcium ion (Ca, Dis- solved	Magne- sium ion (Mg) mg/L	Sodium ion (Na), Dis- solved	Sodium Adsor- ption Ratio (SAR)	Potassium ion (K), Dissolved
						mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Jan. Feb. 8 Mar. Apr. May	1255	882	1,410	7.8	14.0	320	150	91	22	180	4.4	6.1
June 6 July Aug. 15 Sep. Oct. 17 Nov. Dec.	1220 1315 1350	1,180 3,480 1,650	1,230 860 740	7.6 7.6 7.4	27.0 27.5 22.0	270 220 190	150 120 77	93 74 62	16 9.1 7.4	160 83 79	4.2 2.4 2.5	6.0 5.4 4.3

1984 Date	Alka- linity Total (as CaCO ₃)	Sulfate ion (SO ₄), Dis- solved	Chlo- ride ion (Cl), Dis- solved	Silica (SiO ₂), Dis- solved	Oxygen, Dis- solved (DO)	Coli- form, Fecal Cols./ 100 mL	Oxygen Demand, Bio- Chemical (BOD) 5 Day mg/L	Tur- bidity NTU	Solids Dis- solved (Calcu- lated)	Solids Dis- solved (Residue @ 180 Deg C)	Sus- pended Sedi- ment
	mg/L	mg/L	mg/L	mg/L	mg/L		mg/L		mg/L	mg/L	mg/L
Jan. Feb. 8 Mar. Apr. May	170	350	140	25	8.5	50	0.8	50	920	937	140
June 6 July Aug. 15 Sep. Oct. 17 Nov. Dec.	130 100 110	350 240 170	100 34 55	22 16 15	8.3 8.8 8.8	140 3,500 3,300	1.2 1.0 1.1	500 300	820 520 460	824 543 458	3,900 15,700

SUSPENDED SILT - 1984

Date	Time Std.	Stream- flow, Momen- tary Sec.-Ft.	Gravimetric Percent	Date	Time Std.	Stream- flow, Momen- tary Sec.-Ft.	Gravimetric Percent	Date	Time Std.	Stream- flow, Momen- tary Sec.-Ft.	Gravimetric Percent
Feb. 5 21	1109 1200	836 949	.005120 .008360	June 4 18	0840 0905	1,720 2,250	.2020 1.7910	Oct. 1 15	0820 0945	4,150 971	.7279 .06140
Mar. 5 19	1050 1050	772 528	.004680 .01056	July 2 6	0835 0935	3,510 1,330	.3003 .1442	Nov. 5 19	0945 1015	916 916	.01272 .1129
Apr. 2 16	0940 1100	550 448	.004760 .003640	Aug. 6 20 4	0935 1900 0855	1,330 4,630 2,500	.1442 .5139 .1032	Dec. 3 17	0930 1025	1,030 930	.1129 .01263

QUALITY OF WATER - 1984

Pecos River near Langtry, Texas

LOCATION: At gaging station, 15.0 river miles (24.1 km) from the confluence with the Rio Grande, which is located at river mile 616.0 (991.4 km).

RECORDS: Chemical analyses, 1957 through 1984; biochemical analyses, October 1974 through 1984; suspended silt, November 1954 through 1976; specific conductance, 1969 through 1984.

REMARKS: Sampling and analyses by U. S. Geological Survey; sampling and determinations for specific conductance by the International Boundary and Water Commission. Additional water quality parameters, including heavy metals, nutrients, pesticides, and biological indices, determined and published by the U. S. Geological Survey.

1984 Date	Time Std.	Stream- flow, Momen- tary Sec.-Ft.	Specific Conduct- ance Micromhos	pH	Temper- ature Deg C	Hard- ness, Total (as CaCO ₃) mg/L	Hard- ness, Noncar- bonate (as CaCO ₃) mg/L	Calcium ion (Ca), Dis- solved mg/L	Magne- sium ion (Mg) mg/L	Sodium ion (Na), Dis- solved mg/L	Sodium Adsor- ption Ratio (SAR)	Potassium ion (K), Dissolved mg/L
Jan. Feb.	8	1020	170	7.9	12.0	630	460	140	57	420	7.3	6.8
Mar. Apr.	4	1015	138	7.9	20.0	620	480	140	65	400	7.0	7.4
May June	6	0835	115	7.8	25.5	530	430	110	61	380	7.2	7.0
July Aug.	15	0950	79.6	7.6	28.5	430	320	90	49	300	6.3	5.9
Sep. Oct.	17	0850	323	7.5	24.5	590	460	130	54	380	6.8	7.5
Nov. Dec.	5	1030	163	8.1	11.0	570	530	150	71	430	7.2	7.1

1984 Date	Alka- linity Total (as CaCO ₃) mg/L	Sulfate ion (SO ₄), Dis- solved mg/L	Chlo- ride ion (Cl), Dis- solved mg/L	Silica (SiO ₂), Dis- solved mg/L	Oxygen, Dis- solved (DO) mg/L	Coli- form, Fecal Cols./ 100 mL	Oxygen Demand, Bio- Chemical (BOD) 5 Day mg/L	Tur- bidity NTU	Solids Dis- solved (Calcul- ated) mg/L	Solids Dis- solved (Residue @ 190 Deg C) mg/L	Sus- pended Sedi- ment mg/L	
Jan. Feb.	8	170	390	720	13	9.9	21	0.7	0.6	1,900	1,940	3
Mar. Apr.	4	140	400	700	13	9.8	15	.5	1.2	1,300	1,830	4
May June	6	98	370	630	11	9.7	48	1.0	.9	1,600	1,710	2
July Aug.	15	110	280	490	13	9.6	22	1.2	.9	1,300	1,350	6
Sep. Oct.	17	130	380	670	11	9.7	25	1.3		1,700	1,800	
Nov. Dec.	5	140	440	770	12	10.5	14	1.0	1.3	2,000	2,040	5

QUALITY OF WATER - 1984

Pecos River near Langtry, Texas

SPECIFIC CONDUCTANCE OF WATER SAMPLES IN MICROMHOS/CM @ 25 DEG C - 1984

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	2,870	3,030	3,020	3,030	3,120	2,920	2,370	2,020	2,050	1,850	2,950	3,270
2	2,840	2,990	3,000	3,030	3,100	2,930	2,310	2,030	2,090	1,990	2,990	3,290
3	2,780	2,950	2,990	3,030	3,110	2,910	2,340	2,040	1,900	2,030	2,950	3,310
4	2,730	3,010	2,950	3,040	3,070	2,890	2,400	2,050	1,840	2,060	2,970	3,330
5	2,670	3,040	2,980	3,040	3,080	2,840	2,420	2,070	1,820	2,110	2,990	3,220
6	2,700	3,050	2,970	3,040	3,060	2,800	2,440	2,050	1,480	2,130	2,950	3,150
7	2,740	3,050	2,950	3,040	3,070	2,830	2,470	2,040	1,500	2,190	2,950	3,200
8	2,760	3,040	2,920	3,030	3,100	2,780	2,500	2,020	1,810	2,040	2,930	3,270
9	2,750	3,040	2,920	3,030	3,110	2,780	2,520	2,000	2,060	2,170	2,920	3,330
10	2,760	3,030	2,930	3,040	3,140	2,780	2,550	1,990	2,140	2,250	2,940	3,390
11	2,760	3,010	2,940	3,060	3,150	2,740	2,560	2,010	2,170	2,130	2,930	3,450
12	2,810	3,010	2,930	3,040	3,130	2,730	2,540	2,000	2,190	2,280	2,940	3,520
13	2,850	3,010	2,930	3,070	3,140	2,710	2,550	2,020	2,200	2,440	2,950	3,580
14	2,870	3,000	2,930	3,070	3,150	2,640	2,570	2,000	2,180	2,600	2,970	3,580
15	2,890	3,010	2,930	3,070	3,140	2,630	2,590	2,010	2,180	2,740	2,990	3,450
16	2,900	3,010	2,930	3,060	3,100	2,600	2,560	2,030	2,180	2,370	3,030	3,490
17	2,900	3,010	2,950	3,060	2,990	2,510	2,550	2,000	2,190	2,990	3,060	3,370
18	2,930	3,000	2,940	3,060	2,910	2,520	2,560	1,950	2,190	2,950	3,090	3,680
19	2,950	3,010	2,950	3,060	2,840	2,590	2,530	1,940	2,170	2,930	3,120	3,810
20	2,990	3,010	2,940	3,070	2,850	2,620	2,550	1,970	2,140	2,900	3,130	3,870
21	3,020	3,010	2,950	3,060	2,870	2,630	2,560	1,990	2,170	2,920	3,160	3,390
22	3,030	3,010	2,980	3,060	2,900	2,650	2,580	2,010	2,180	2,910	3,180	3,900
23	3,030	2,990	2,990	3,090	2,910	2,660	2,540	2,040	2,180	2,940	3,180	3,930
24	3,030	2,980	3,000	3,110	2,920	2,670	2,480	2,000	2,190	2,890	3,190	3,950
25	3,030	2,950	3,000	3,130	2,930	2,670	2,010	2,010	2,160	2,900	3,200	3,890
26	3,040	2,970	2,980	3,140	2,910	2,670	2,040	2,030	2,160	2,920	3,210	3,940
27	3,040	3,000	2,990	3,130	2,920	2,670	2,050	2,050	1,950	2,860	3,160	4,000
28	3,040	3,010	3,000	3,130	2,930	2,630	2,070	2,050	1,530	2,890	3,190	4,030
29	3,040	3,030	3,000	3,130	2,890	2,540	2,090	2,090	1,280	2,910	3,220	4,050
30	3,040		3,020	3,140	2,890	2,500	2,110	2,120	1,660	2,940	3,250	3,730
31	3,040		3,040		2,910		2,070	2,080		2,950		3,040

QUALITY OF WATER - 1984

Devils River at Pafford Crossing near Comstock, Texas

LOCATION: At gaging station 25.5 river miles (41.0 km) from the confluence with the Rio Grande, which is located at river mile 574.6 (924.7 km).

RECORDS: Specific conductance, 1968 through 1984.

REMARKS: Sampling and determinations for specific conductance by the U. S. Geological Survey. Sampling prior to 1978 by the International Boundary and Water Commission. Chemical and biochemical analyses, 1973 through 1984 available from U. S. Geological Survey.

SPECIFIC CONDUCTANCE OF WATER SAMPLES IN MICROMHOS/CM @ 25 DEG C - 1984

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	482	377	385	368	382	354	385	378	406	450	463	415
2	478	376	385	361	372	355	388	375	402	461	465	417
3	477	384	385	375	367	354	395	377	399	463	468	416
4	484	382	378	387	381	356	397	378	400	457	470	418
5	486	380	383	393	377	359	400	376	407	457	469	422
6	484	393	379	392	370	357	395	373	412	450	471	417
7	491	397	381	386	373	365	399	375	409	459	472	423
8	430	396	382	381	364	368	403	379	409	463	470	425
9	285	394	382	386	375	373	406	381	405	452	471	425
10	295	392	377	383	378	375	408	375	400	447	474	427
11	303	384	384	387	377	378	410	376	402	362	475	415
12	303	380	372	378	374	382	411	378	403	420	473	420
13	311	384	377	385	372	384	410	371	402	447	473	423
14	312	388	375	390	372	379	413	365	400	444	478	405
15	318	379	368	378	374	376	416	398	408	433	476	390
16	327	387	370	379	370	380	412	406	415	365	478	413
17	332	386	369	391	359	383	404	411	415	380	475	419
18	338	378	368	390	365	385	405	411	411	436	452	413
19	340	379	366	385	368	390	410	409	421	440	455	415
20	344	384	365	389	367	394	413	407	412	442	440	415
21	350	379	370	381	374	391	415	408	428	445	431	407
22	354	386	369	383	373	393	418	406	417	450	435	395
23	354	381	363	390	371	395	413	407	413	452	437	404
24	358	388	366	388	367	396	405	408	412	451	422	400
25	353	388	370	385	359	398	355	408	414	442	407	407
26	361	382	365	382	358	400	365	399	411	445	408	413
27	358	384	365	379	355	402	369	409	419	443	410	413
28	359	381	366	384	343	392	372	409	389	447	411	407
29	368	385	370	373	357	387	374	406	372	453	414	396
30	370		370	380	364	381	375	392	404	458	413	387
31	374		361		365		378	393		459		361

QUALITY OF WATER - 1984

Rio Grande below Amistad Dam near Cd. Acuna, Coahuila and Del Rio, Texas

LOCATION: Gaging station at river mile 571.8 (920.3 km), 2.2 river miles (3.4 km) downstream from Amistad Dam.
 RECORDS: Chemical analyses, July 1968 through 1984; suspended silt, 1969 through 1976; specific conductance 1968 through 1984.

REMARKS: Sampling for chemical analyses by the International Boundary and Water Commission, analyses by the U. S. Geological Survey. Sampling and determinations for specific conductance by the International Boundary and Water Commission.

1984	Time	Streamflow, Momentary	Specific Conductance	pH	Temper- ature	Hardness, Total (as CaCO ₃)	Hardness, Noncarbonate (as CaCO ₃)	Calcium ion (Ca), Dissolved	Magnesium ion (Mg), Dissolved
Date	Standard	Second-Feet	Micromhos	Units	Deg C	mg/L	mg/L	mg/L	mg/L
Jan. 18	0820	468	1,080	8.2	9.5	130	140	75	20
Feb. 17	1555	542	1,080	8.1	13.5	280	150	78	20
Mar. 21	0805	2,480	1,080	8.0	15.0	270	140	75	20
Apr. 23	1325	516	1,070	7.9	21.0	270	150	74	21
May 16	0735	8,860	1,070	8.0	19.0	270	140	74	21
June 20	0730	1,850	1,100	8.1	19.0	280	150	76	21
July 18	0733	3,670	1,100	8.1	19.5	290	150	80	22
Aug. 15	0740	1,830	1,120	8.0	21.0	290	140	76	21
Sep. 19	0735	1,340	1,110	7.8	24.5	280	150	77	21
Oct. 17	1445	879	1,120	8.0	23.5	270	150	77	20
Nov. 21	0830	552	1,110	8.1	16.5	270	150	75	20
Dec. 24	1055	1,590	1,150	8.0	16.0	280	160	81	20

1984	Sodium ion (Na), Dissolved	Sodium Adsorption Ratio(SAR)	Potassium ion (K), Dissolved	Alkalinity Total (as CaCO ₃)	Sulfate ion (SO ₄), Dissolved	Chloride ion (Cl), Dissolved	Silica (SiO ₂), Dissolved	Solids Dissolved (Calculated)
Date	mg/L		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Jan. 18	120	3.2	4.6	130	230	130	17	675
Feb. 17	130	3.4	4.9	130	240	130	18	699
Mar. 21	120	3.2	4.7	130	230	130	17	675
Apr. 23	120	3.2	4.6	120	230	130	17	669
May 16	120	3.2	4.9	130	230	130	17	675
June 20	130	3.4	4.6	130	240	130	18	698
July 18	130	3.3	5.0	140	230	130	18	599
Aug. 15	130	3.4	5.0	140	240	130	18	704
Sep. 19	130	3.4	4.9	130	240	130	19	700
Oct. 17	130	3.4	5.4	120	260	120	18	703
Nov. 21	130	3.4	5.3	120	260	130	19	711
Dec. 24	130	3.4	5.8	120	270	130	18	727

SPECIFIC CONDUCTANCE OF WATER SAMPLES IN MICROMHOS/CM @ 25 DEG C - 1994

January	February	April	June	July	September	November
3 1,050	27 1,070	11 1,080	4 1,110	27 1,120	17 1,110	7 1,120
5 1,080	29 1,070	13 1,070	6 1,100	30 1,120	19 1,100	9 1,150
9 1,080	March	13 1,080	8 1,100	August	21 1,100	13 1,110
11 1,060	2 1,060	16 1,080	11 1,120	1 1,120	24 1,110	14 1,110
13 1,070	5 1,170	18 1,080	13 1,100	3 1,120	26 1,120	16 1,110
16 1,070	7 1,060	20 1,070	15 1,100	6 1,110	28 1,110	19 1,110
18 1,080	9 1,090	23 1,090	18 1,100	8 1,120	October	21 1,110
20 1,060	12 1,080	25 1,080	20 1,100	10 1,100	1 1,120	26 1,110
23 1,080	14 1,080	27 1,060	22 1,100	13 1,060	3 1,130	28 1,110
25 1,050	16 1,090	30 1,080	25 1,100	15 1,110	5 1,120	30 1,110
27 1,070	19 1,100	May	27 1,090	17 1,110	9 1,110	December
30 1,090	21 1,090	2 1,080	29 1,100	20 1,060	10 1,100	2 1,110
February	23 1,100	4 1,080	July	22 1,100	12 1,110	5 1,110
1 1,090	26 1,070	7 1,050	2 1,100	24 1,110	15 1,110	7 1,110
3 1,090	28 1,070	9 1,070	5 1,100	27 1,110	17 1,130	10 1,110
6 1,100	30 1,080	11 1,100	6 1,100	29 1,090	19 1,110	12 1,110
8 1,150	April	14 1,100	9 1,100	31 1,110	22 1,120	14 1,110
10 1,130	2 1,100	16 1,090	11 1,110	September	24 1,110	17 1,100
13 1,080	4 1,080	18 1,100	13 1,110	4 1,100	26 1,110	19 1,100
15 1,010	6 1,090	21 1,060	16 1,110	6 1,100	29 1,110	21 1,120
17 1,030	6 1,080	23 1,110	18 1,110	7 1,100	31 1,110	24 1,140
21 1,060	9 1,080	25 1,120	20 1,110	10 1,090	November	25 1,150
22 1,140	9 1,090	29 1,100	23 1,110	12 1,090	2 1,110	28 1,160
25 1,140	11 1,040	31 1,080	25 1,120	14 1,080	5 1,110	30 1,150

QUALITY OF WATER - 1984

Rio Grande near Jimenez, Coahuila and Quemado, Texas

LOCATION: Near gaging station at Maverick Canal Headgates. The canal intake is at river mile 543.6 (974.9 km), 13.3 river miles (21.5 km) above the gaging station.

RECORDS: Specific conductance, 1954 through 1984.

REMARKS: Sampling and determinations by the International Boundary and Water Commission.

SPECIFIC CONDUCTANCE OF WATER SAMPLES IN MICROMHOS/CM @ 25 DEG C - 1984

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	947	1,020	1,040	1,100	1,030	983	1,070	1,130	1,130	1,090	1,030	1,060
2	1,030	1,030	1,040	1,070	1,030	985	1,070	1,120	1,110	1,070	1,040	1,040
3	1,010	1,030	1,040	1,090	1,090	1,010	1,030	1,110	1,110	1,070	1,050	1,040
4	1,030	1,030	1,030	1,030	1,030	1,030	1,060	1,120	1,100	1,070	1,040	1,040
5	1,020	1,040	1,050	1,060	1,060	1,040	1,080	1,090	1,100	1,090	1,030	1,030
6	1,020	1,030	1,050	1,070	1,070	1,030	1,050	1,110	1,100	1,070	1,030	1,090
7	1,030	1,040	1,030	1,070	1,070	997	1,090	1,100	1,130	1,070	1,030	1,100
8	1,030	1,040	1,030	1,070	1,070	1,050	1,030	1,050	1,100	1,050	1,030	1,030
9	1,020	1,050	1,030	1,070	1,050	983	1,090	1,110	1,100	989	1,030	1,070
10	1,030	1,050	1,040	1,070	1,080	1,050	1,090	1,110	1,100	1,010	1,030	1,070
11	983	1,050	1,040	1,070	1,040	1,070	1,090	1,110	1,110	813	1,030	1,070
12	990	1,060	1,040	1,060	1,060	1,060	1,080	1,110	1,120	587	1,030	1,070
13	962	1,060	1,050	1,070	1,090	1,060	1,080	1,100	1,110	949	1,040	1,110
14	933	1,060	1,050	1,050	1,070	1,070	1,090	1,110	1,120	953	1,030	1,070
15	945	984	1,040	1,050	1,070	1,050	1,100	1,110	1,130	841	1,030	1,060
16	949	941	1,060	1,040	1,090	1,060	1,060	1,100	1,090	1,010	1,030	1,080
17	953	935	1,060	1,030	1,080	1,080	1,090	1,110	1,090	1,040	1,040	1,070
18	959	935	1,060	1,050	909	1,050	1,090	1,110	1,090	1,060	1,040	1,070
19	957	934	1,060	1,040	1,060	1,060	1,110	1,110	1,290	1,040	1,030	1,080
20	949	958	1,060	977	1,080	1,060	1,080	1,110	1,090	1,030	1,050	1,070
21	941	956	1,060	979	1,080	1,050	1,090	1,170	1,090	1,020	1,050	1,080
22	936	955	1,060	934	1,070	1,050	1,100	1,120	1,090	1,030	1,030	1,030
23	938	1,040	1,100	985	1,050	1,050	1,100	1,100	1,070	1,030	1,030	1,090
24	950	1,070	1,070	970	1,000	1,050	1,090	1,110	1,090	1,030	1,040	1,100
25	951	1,030	1,080	976	1,000	1,050	1,070	1,110	1,070	1,040	1,040	1,110
26	937	1,070	1,080	976	1,020	1,050	966	1,110	1,080	1,020	1,020	1,120
27	944	1,080	1,070	973	1,020	1,050	1,070	1,110	1,090	1,010	1,030	1,120
28	934	1,030	1,090	986	1,010	1,050	1,100	1,110	1,090	1,050	1,040	1,110
29	943	1,030	1,060	1,010	1,020	1,060	1,130	1,110	1,070	1,010	1,040	1,120
30	1,010	1,070	1,070	1,010	965	1,080	1,090	1,110	1,040	1,010	1,040	1,110
31	1,010	1,050	1,050		978			1,110				1,090

Rio Grande near El Indio, Texas and Villa Guerrero, Coahuila

LOCATION: Gaging station at river mile 460.4 (741.0 km), 35.9 river miles (57.3 km) downstream from the International highway bridge between Eagle Pass, Texas and Piedras Negras, Coahuila.

RECORDS: Specific conductance 1954 through 1984.

REMARKS: Sampling and determinations by the International Boundary and Water Commission.

SPECIFIC CONDUCTANCE OF WATER SAMPLES IN MICROMHOS/CM @ 25 DEG C - 1984

January	March	May	July	August	October	November
5 1,020	6 1,100	2 1,150	2 1,110	20 1,170	3 1,100	21 1,090
23 1,030	20 1,160	16 1,150	17 1,150	September	17 744	December
February	April	June	August	6 1,170	November	5 1,100
7 1,100	4 1,150	5 979	3 1,170	18 1,150	6 1,040	18 1,150
22 1,020	17 1,120	19 1,090				

QUALITY OF WATER - 1984

Rio Grande at Nuevo Laredo, Tamaulipas and Laredo, Texas

LOCATION: Samples for biochemical analyses, specific conductance, and suspended silt collected at the Laredo Water Plant, river mile 364.0 (555.8 km); for chemical and biochemical analyses at International Bridge II, river mile 360.6 (550.3 km).

RECORDS: Chemical analyses, 1955 through 1976; chemical and biochemical analyses, 1973 through 1984; biochemical analyses, September 1969 through 1984; suspended silt, 1953 through 1984; specific conductance, 1948-1949 and 1955 through 1984.

REMARKS: Samples for chemical and biochemical analyses collected and analyzed by the U. S. Geological Survey; sampling and determinations for suspended silt and specific conductance by the International Boundary and Water Commission and the Texas Department of Water Resources. Additional water quality parameters, including heavy metals, nutrients, pesticides, and biological indices, determined and published by the U. S. Geological Survey.

1984	Time	Stream-flow, Momentary	Specific Conductance	pH	Temperature	Hardness, Total (as CaCO ₃)	Hardness, Noncarbonate (as CaCO ₃)	Calcium ion (Ca), Dissolved	Magnesium ion (Mg)	Sodium ion (Na), Dissolved	Sodium Adsorption Ratio (SAR)	Potassium ion (K), Dissolved
Date	Std.	Sec.-Ft.	Micromhos	Units	Deg C	mg/L	mg/L	mg/L	mg/L	mg/L		mg/L
Jan. 25	1559	905	1,020	8.4	10.0	300	150	86	20	97	2.4	3.5
Feb.												
Mar. 15	0915	1,950	1,030	8.0	21.5	290	150	80	22	120	3.1	4.6
Apr.												
May 2	1505	770	1,100	8.1	26.5	310	190	82	24	130	3.2	5.1
June												
July 13	1645	3,320	1,030	8.2	28.5	270	150	75	20	120	3.2	4.8
Aug.												
Sep. 5	1400	3,670	960	8.0	28.0	240	130	67	17	100	2.8	5.5
Oct. 31	1545	1,020	1,020	8.5	25.0	290	140	85	19	100	2.6	4.0
Nov.												
Dec.												

1984	Alkalinity Total (as CaCO ₃)	Sulfate ion (SO ₄), Dissolved	Chloride ion (Cl), Dissolved	Silica (SiO ₂), Dissolved	Oxygen, Dissolved (DO)	Coliform, Fecal	Oxygen Demand, Biochemical (BOD) 5 Day	Turbidity	Solids Dissolved (Calculated)	Solids Dissolved (Residue @ 180 Deg C)	Suspended Sediment
Date	mg/L	mg/L	mg/L	mg/L	mg/L	Cols./100 mL	mg/L	NTU	mg/L	mg/L	mg/L
Jan. 25	150	210	110	10	12	19,000	4.2	8.4	630	620	14
Feb.											
Mar. 15	144	230	120	13	7.8	11,000	1.3	16	680	687	55
Apr.											
May 2	120	280	150	14	8.0	100,000	3.0	11	760	762	27
June											
July 18	121	230	130	16	7.9	5,800	1.6	24	670	682	76
Aug.											
Sep. 5	110	200	110	15	6.4	18,000	2.4	250	580	595	492
Oct. 31	150	220	110	17	8.1	34,000	1.6	35	650	676	40
Nov.											
Dec.											

1984	Stream-flow, Momentary	Specific Conductance	pH	Temperature	Oxygen, Dissolved (DO)	Coliform, Fecal	Oxygen Demand, Biochemical (BOD) 5 Day	Alkalinity Total (as CaCO ₃)	Sulfate ion (SO ₄), Dissolved	Chloride ion (Cl), Dissolved	Solids, Dissolved (Residue @ 180 Deg C)	Suspended Sediment	
Date	Std. Sec.-Ft.	Micromhos	Units	Deg C	mg/L	Cols./100 mL	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	
Jan. 18	0900	1,030	1,010	8.3	11.0	9.5	5	1.0	132	221	118	678	10
Feb. 14	0850	2,260	1,020	8.4	16.5	9.2	60	1.0	135	224	118	726	19
Mar. 6	1630	1,860	960	8.4	17.9	9.5	290		134	250	122	26	26
Apr. 24	0930	671	1,070	8.4	23.0	9.4	40	1.0	135	257	131	758	29
May 22	0700	7,420	930	8.2	25.0	9.0	80	2.5	160	197	98	598	128
June 20	1220	1,630	940	8.1	28.4	7.5	50		120	226	113	54	54
July 13	0730	3,320	1,020	8.0	27.0	8.9	40	1.0	130	238	120	716	59
Aug. 14	0700	3,500	1,070	8.2	25.5	7.8	85	8.0	147	251	129	752	81
Sep. 18	0850	2,420	1,140	8.0	25.0	7.6	33		127	240	128	43	43
Oct. 20	0830	1,350	1,000	8.3	23.5	8.2	20	1.5	154	214	104	662	54
Nov. 19	0915	699	1,010	8.1	17.5	9.3	35	3.5	132	253	111	598	26
Dec. 18	1545	1,250	1,230	8.3	19.5	8.9	36		144	250	116	23	23

QUALITY OF WATER - 1984

Rio Grande at Nuevo Laredo, Tamaulipas and Laredo, Texas

SUSPENDED SILT - 1984

Month	Tons		Number of Samples	Gravimetric Percentages			Acre-Feet 15 1,452 Tons/Ac.Ft.	1968-1984 Period of Record		
	Water	Silt		Average	Maximum Sample	Minimum Sample		Average	Maximum	Minimum
Jan.	119,519,000	6,930	31	0.005800			4.8	4.7	11.0	0.93
Feb.	132,590,000	5,830	29	.004400			4.0	11.8	109	.88
Mar.	130,816,000	4,190	31	.002320			2.9	11.0	52.7	1.8
Apr.	287,094,000	9,530	29	.003320			5.6	29.3	251	.69
May	483,664,000	24,200	30	.005000			16.7	48.0	165	1.1
June	118,682,000	3,700	30	.003120			2.5	64.1	688	.56
July	274,414,000	16,800	30	.006120			11.6	60.7	418	1.3
Aug.	261,268,000	3,660	31	.001400			2.5	53.1	313	2.3
Sep.	208,223,000	4,830	29	.002320			3.3	72.0	700	3.3
Oct.	242,589,000	55,200	31	.02316	0.06060	0.004900	38.7	57.0	286	1.7
Nov.	61,392,000	1,180	30	.001920			.81	7.4	27.3	.81
Dec.	114,427,000	961	31	.003400			.66	5.1	15.2	.66
Year	2,484,678,000	133,011	362	0.005554			95.07	424.2	1,626.9	95.07

SPECIFIC CONDUCTANCE OF WATER SAMPLES IN MICROMHOS/CM @ 25 DEG C - 1984

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	986	991	1,040	1,120	1,200	921	1,050	1,060	1,140	1,120	984	1,140
2	1,060	970	1,060	1,120	1,200	897	1,020	1,090	1,120	1,040	999	1,130
3	1,050	961	1,070	1,110	1,190	983	1,010	1,100	1,120	995	998	1,120
4	996	977	1,090	1,100	1,180	906	990	1,100	1,120	1,020	1,010	1,120
5	1,000	971	1,090	1,110	1,170	919	1,040	1,090	1,020	1,100	1,010	1,120
6	1,010	978	1,070	1,110	1,110	938	1,050	1,110	1,050	1,100	1,010	1,100
7	972	981	1,060	1,110	1,090	905	1,050	1,110	1,100	1,110	1,010	1,100
8	994	994	1,090	1,110	1,090	938	1,060	1,110	1,110	1,070	1,040	1,090
9	985	1,010	1,080	1,100	1,090	913	1,080	1,110	1,080	1,080	1,020	1,090
10	982	1,030	1,080	1,100	1,090	689	1,070	1,110	1,120	1,120	989	1,100
11	1,010	1,030	1,070	1,090	1,100	950	1,060	1,130	1,100	1,100	998	1,110
12	1,030	1,040	1,060	1,100	1,090	951	1,070	1,120	1,110	1,070	1,000	1,110
13	1,010	1,050	1,070	1,100	1,100	1,010	1,040	1,130	1,110	501	1,000	907
14	1,010	1,050	1,070	1,090	1,110	997	1,060	1,120	1,120	378	1,000	1,090
15	1,020	1,040	1,080	1,100	1,080	988	1,030	961	1,110	412	1,050	838
16	1,020	1,050	1,090	1,100	1,080	1,010	1,050	1,110	1,120	482	1,060	1,130
17	1,030	1,050	1,090	1,110	1,090	1,010	1,050	1,120	1,110	555	1,060	1,130
18	1,030	1,060	1,090	1,100	1,050	1,020	1,060	1,120	1,120	515	1,060	1,150
19	1,040	1,070	1,090	1,030	1,030	1,010	1,070	1,120	1,120	498	1,070	1,150
20	1,060	1,070	831	1,130	1,020	1,010	1,090	1,120	1,120	558	1,050	1,150
21	1,020	1,090	1,080	1,130	908	1,010	1,080	1,110	1,110	642	1,050	1,160
22	978	1,100	1,100	1,150	1,020	1,020	1,080	1,120	1,110	764	1,050	1,150
23	992	1,090	1,100	1,150	959	1,020	1,030	1,110	1,120	874	1,050	1,140
24	994	1,110	1,090	1,160	1,000	1,040	1,080	1,120	1,120	945	1,040	1,150
25	995	1,120	1,100	1,170	947	1,030	1,090	1,130	1,130	959	1,040	1,160
26	990	1,080	1,110		1,020	1,020	1,080	1,120	1,110	991	1,030	1,170
27	984	1,030	1,110	1,180	1,020	903	1,090	1,110	1,130	1,010	1,050	1,170
28	961	1,000	1,110	1,190	1,010	1,020	1,070	1,120	1,120	1,020	1,040	1,170
29	959	1,000	1,110	1,200	1,010	1,040	1,060	1,120	1,120	1,020	1,030	1,160
30	978		1,110	1,190	1,010	1,040	1,020	1,120	1,120	764	1,020	1,170
31	979		1,120		1,000		972	1,120		1,010		1,140

QUALITY OF WATER - 1984

Rio Grande below Falcon Dam near Falcon, Texas and Nueva Cd. Guerrero, Tamaulipas

LOCATION: Chemical sampling at the Falcon Village Water Plant, river mile 274.8 (442.3 km), and biochemical sampling at the Chapeno gaging station 2.5 river miles (4.1 km) below Falcon Dam; latitude 26°31'45", longitude 99°09'30".

RECORDS: Chemical analyses, July 1955 through 1984; biochemical analyses, July 1975 through 1984; suspended silt, July 1955 through 1976; specific conductance 1955 through 1984.

REMARKS: Sampling for chemical analyses by the International Boundary and Water Commission, analyses by the U. S. Geological Survey; sampling and determinations for specific conductance by the International Boundary and Water Commission; biochemical analyses, collected and analyzed by the International Boundary and Water Commission and the Texas Department of Water Resources.

1984	Time	Streamflow, Momentary	Specific Conductance	pH	Temperature	Hardness, Total (as CaCO3)	Hardness, Noncarbonate (as CaCO3)	Calcium ion (Ca), Dissolved	Magnesium ion (Mg), Dissolved
Date	Standard	Second-Foot	Micromhos	Units	Deg C	mg/L	mg/L	mg/L	mg/L
Jan. 19	1030	5,500	1,160	8.0	14.0	280	170	76	23
Feb. 15	1100	18.0	1,120	7.9	11.0	290	180	75	24
Mar. 19	0945	1,080	1,140	7.8	18.0	290	180	77	23
Apr. 16	1115	12,300	1,150	7.8	22.0	290	180	78	24
May 21	1315	18.0	1,150	7.8	24.5	290	180	75	24
June 19	1030	3,050	1,120	7.9	27.0	280	180	74	23
July 17	1030	1,340	1,130	8.0	26.5	290	190	77	23
Aug. 20	1130	2,600	1,140	7.8	26.5	270	170	68	24
Sep. 25	1045	687	1,140	7.6	25.5	260	170	66	24
Oct. 24	0930	1,930	1,150	7.7	24.5	270	170	71	23
Nov. 20	1040	1,600	1,100	7.9	21.0	260	160	63	22
Dec. 18	0930	1,140	1,110	7.7	19.0	270	160	73	22

1984	Sodium ion (Na), Dissolved	Sodium Adsorption Ratio(SAR)	Potassium ion (K), Dissolved	Alkalinity Total (as CaCO3)	Sulfate ion (SO4), Dissolved	Chloride ion (Cl), Dissolved	Silica (SiO2), Dissolved	Solids Dissolved (Calculated)
Date	mg/L		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Jan. 19	130	3.4	5.0	110	270	140	12	722
Feb. 15	130	3.3	5.2	110	270	130	12	712
Mar. 19	130	3.3	4.7	110	270	140	11	722
Apr. 16	130	3.3	4.8	110	280	140	11	734
May 21	130	3.3	5.0	110	270	140	12	721
June 19	130	3.4	4.7	100	270	140	12	714
July 17	130	3.3	5.3	110	260	130	13	713
Aug. 20	140	3.7	5.3	97	270	130	13	709
Sep. 25	140	3.8	5.3	95	270	150	14	725
Oct. 24	130	3.4	5.6	98	270	140	14	713
Nov. 20	130	3.5	5.2	100	260	140	14	699
Dec. 18	130	3.4	5.5	110	260	140	14	711

1984	Time	Streamflow, Momentary	Specific Conductance	pH	Temperature	Oxygen Dissolved (DO)	Coliform, Fecal	Alkalinity Total (as CaCO3)	Sulfate ion (SO4), Dissolved	Chloride ion (Cl), Dissolved	Solids, Dissolved (Residue @ 180 Deg C)	Suspended Sediment
Date	Std.	Sec.-Ft.	Micromhos	Units	Deg C	mg/L	Cols./100 mL	mg/L	mg/L	mg/L	mg/L	mg/L
Jan. 25	1140	18.0	1,030	8.2	13.1	8.3	10	115	270	133	711	5.0
Feb. 28	1230	318	1,040	8.5	15.8	11.3		119	290	130	710	15
Mar. 5	1130	3,030	1,040	8.4	15.5	9.8	10	115	220	131		12
Apr. 15	1215	12,700	959	8.3	23.9	8.9	10	112	250	133	1,400	6.0
May 5	0933	13,500	1,070	7.3	24.6	7.8	20	122	390	135	710	8.0
June 20	1550	1,930	1,030	7.3	29.7	6.5	56	109	274	136		19
July 24	0910	775	1,050	7.8	27.3	7.0	37	107	259	134		19
Aug. 22	1530	6,150	1,030	7.9	28.5	6.0	72	132	250	137		19
Sep. 17	1230	600	1,180	8.1	26.3	5.5	33	235	250	140		5.0
Oct. 9	1140	500	1,190	8.0	24.8	5.3	18	104	230	140	714	9.0
Nov. 27	1500	1,520	970	8.0	18.6	9.9	13	111	270	132		15
Dec. 18	1140	1,140	1,230	8.0	18.1	7.8	9	116	300	128		6.0

QUALITY OF WATER - 1984

Rio Grande below Falcon Dam near Falcon, Texas and Nueva Cd. Guerrero, Tamaulipas

SPECIFIC CONDUCTANCE OF WATER SAMPLES IN MICROMHDS/CM @ 25 DEG C - 1984

January	February	April	June	July	September	November
2 1,170	24 1,130	16 1,150	6 1,130	30 1,140	19 1,140	9 1,130
4 1,160	27 1,140	18 1,150	8 1,130	1 1,120	21 1,150	11 1,120
6 1,160	29 1,130	20 1,150	11 1,130	3 1,120	24 1,150	14 1,120
9 1,170	March	23 1,150	13 1,120	6 1,140	26 1,150	16 1,130
11 1,150	2 1,170	25 1,160	15 1,120	9 1,120	28 1,140	19 1,140
13 1,160	5 1,150	27 1,150	18 1,130	12 1,120	31 1,150	21 1,140
16 1,150	7 1,140	30 1,150	20 1,120	15 1,130	October	23 1,130
18 1,160	9 1,130	May	22 1,120	17 1,130	1 1,150	25 1,140
20 1,140	12 1,140	2 1,150	25 1,120	20 1,130	3 1,150	28 1,140
23 1,140	14 1,140	4 1,160	27 1,120	22 1,130	5 1,150	30 1,140
25 1,130	16 1,130	7 1,150	29 1,130	24 1,140	7 1,150	December
27 1,150	19 1,140	9 1,150	July	26 1,130	10 1,160	9 1,180
30 1,140	21 1,140	11 1,150	2 1,130	27 1,140	12 1,150	12 1,190
February	23 1,140	14 1,160	5 1,120	29 1,140	15 1,170	15 1,190
1 1,130	26 1,130	16 1,150	8 1,120	31 1,140	17 1,150	18 1,180
3 1,130	28 1,140	18 1,140	9 1,130	September	19 1,160	21 1,200
6 1,130	30 1,140	21 1,150	11 1,130	2 1,150	22 1,150	24 1,180
9 1,130	April	23 1,150	13 1,130	5 1,160	24 1,140	17 1,180
10 1,120	2 1,150	25 1,140	16 1,130	7 1,140	26 1,150	19 1,170
13 1,120	4 1,150	27 1,140	18 1,120	9 1,140	29 1,150	21 1,170
15 1,120	6 1,150	30 1,140	20 1,130	11 1,140	31 1,150	24 1,160
17 1,130	9 1,150	June	23 1,130	12 1,140	November	25 1,190
21 1,120	11 1,150	1 1,140	25 1,120	14 1,140	2 1,120	28 1,130
22 1,140	13 1,150	4 1,140	27 1,130	17 1,140	5 1,120	31 1,170

Rancherias Drain near Camargo, Tamaulipas

LOCATION: At a point about 1,950 feet (590 m) from the confluence with the Rio Grande, which is located at river mile 241.6 (388.3 km). This drain carries wastewater from the Lower Rio San Juan Irrigation District in Mexico.

RECORDS: Specific conductance, 1943 and 1950 through 1984.

REMARKS: Sampling and determinations by the International Boundary and Water Commission.

SPECIFIC CONDUCTANCE OF WATER SAMPLES IN MICROMHDS/CM @ 25 DEG C - 1984

January	March	April	June	August	September	November
3 6,570	3 7,400	26 4,210	20 5,770	15 5,540	27 5,360	13 5,130
25 3,760	22 7,509	May	4 5,900	29 5,120	October	30 6,150
31 5,940	29 7,710	3 4,210	18 6,200	September	3 5,350	December
February	April	21 4,479	31 6,580	5 5,620	17 5,330	5 6,340
29 7,510	10 7,300			13 5,390	31 6,010	19 6,760

QUALITY OF WATER - 1984

Rio San Juan at Camargo, Tamaulipas

LOCATION: At gaging station, 3.1 river miles (5 km) from the confluence with the Rio Grande, which is located at river mile 238.7 (384.1 km).

RECORDS: Specific conductance, 1950 through 1984.

REMARKS: Sampling and determinations by the International Boundary and Water Commission.

SPECIFIC CONDUCTANCE OF WATER SAMPLES IN MICROMHOS/CM @ 25 DEG C - 1984

January	February	March	May	August	September	November
3 # 1,050	13 825	29 # 971	21 # 1,870	15 # 2,000	27 # 2,050	13 # 2,200
25 # 1,780	29 859	April	June	29 # 2,010	October	30 # 2,200
31 # 1,290	March	10 # 1,190	20 # 1,850	September	3 # 1,960	December
February	5 962	26 # 2,200	July	5 # 2,000	17 # 2,130	5 # 2,320
7 845	8 968	May	18 # 2,130	13 # 2,020	31 # 2,070	19 # 2,360
	22 # 1,050	3 # 2,220	31 # 1,920			

Below Marte R. Gomez

Rio Grande at Rio Grande City, Texas near Camargo, Tamaulipas

LOCATION: Gaging station at river mile 235.0 (378.1 km), 3.7 river miles (6.0 km) downstream from Rio San Juan.

RECORDS: Chemical analyses, 1959 through 1984; specific conductance, 1958 through 1984; suspended silt, 1959 through 1977.

REMARKS: Sampling by the International Boundary and Water Commission; chemical analyses by the U.S. Geological Survey; specific conductance determinations by the International Boundary and Water Commission.

1984	Time	Streamflow, Momentary	Specific Conductance	pH	Temper- ature	Hardness, Total (as CaCO ₃)	Hardness, Noncarbonate (as CaCO ₃)	Calcium ion (Ca), Dissolved	Magnesium ion (Mg), Dissolved
Date	Standard	Second-Foot	Micromhos	Units	Deg C	mg/L	mg/L	mg/L	mg/L
Jan. 16	1315	6,170	1,170	8.0	18.5	290	180	76	24
Feb. 13	1315	944	956	7.9	20.0	250	130	72	18
Mar. 20	1310	1,940	1,180	7.8	20.5	310	190	90	24
Apr. 18	1200	12,500	1,160	7.6	23.5	290	180	78	24
May 15	1330	5,980	1,190	7.8	24.5	290	170	75	24
June 12	1115	3,030	1,160	7.7	29.0	280	170	74	24
July 17	1200	2,630	1,210	7.8	30.5	280	180	74	24
Aug. 14	1130	3,720	1,130	7.8	29.0	260	150	66	23
Sep. 17	1230	636	1,390	7.7	20.0	290	190	75	26
Oct. 13	1145	1,590	1,480	7.9	25.5	300	180	77	26
Nov. 19	1300	1,690	1,140	8.1	18.5	260	160	68	23
Dec. 18	1400	1,010	1,330	7.7	20.5	310	200	85	24

1984	Sodium ion (Na), Dissolved	Sodium Adsorption Ratio(SAR)	Potassium ion (K), Dissolved	Alkalinity Total (as CaCO ₃)	Sulfate ion (SO ₄), Dissolved	Chloride ion (Cl), Dissolved	Silica (SiO ₂), Dissolved	Solids Dissolved (Calculated)
Date	mg/L		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Jan. 16	130	3.3	5.1	110	280	140	12	733
Feb. 13	100	2.7	4.5	120	200	120	7.4	594
Mar. 20	130	3.3	4.8	110	290	140	10	745
Apr. 18	130	3.3	5.1	110	280	140	11	734
May 15	140	3.6	5.4	120	270	150	11	748
June 12	140	3.6	5.0	110	280	140	12	740
July 17	140	3.6	5.4	100	270	160	13	747
Aug. 14	140	3.8	5.4	95	270	130	11	703
Sep. 17	190	4.6	5.3	100	320	200	14	880
Oct. 13	190	4.8	5.5	120	320	220	15	926
Nov. 19	140	3.7	5.2	100	270	150	12	728
Dec. 18	150	3.7	5.7	110	270	200	12	813

QUALITY OF WATER - 1984

Rio Grande at Rio Grande City, Texas near Camargo, Tamaulipas

SPECIFIC CONDUCTANCE OF WATER SAMPLES IN MICROMHOS/CM @ 25 DEG C - 1984

January	February	April	June	July	September	November
2 1,290	24 1,210	16 1,270	6 1,190	30 1,340	19 1,650	9 1,370
4 1,270	27 1,220	18 1,260	8 1,290	August	21 1,770	12 1,330
6 1,250	29 1,270	20 1,250	11 1,310	1 1,330	24 1,420	14 1,330
9 1,270	March	23 1,170	13 1,300	3 1,340	26 1,460	16 1,320
11 1,240	2 1,290	25 1,250	15 1,500	6 1,260	28 1,120	19 1,370
13 1,330	5 1,300	27 1,250	18 1,300	8 1,270	October	21 1,290
16 1,320	7 1,220	30 1,260	20 1,360	10 1,320	1 1,050	23 1,300
18 1,230	9 1,290	May	22 1,330	13 1,310	3 762	26 1,300
20 1,470	12 1,370	2 1,250	25 1,270	15 1,270	5 1,120	28 1,300
23 1,330	14 1,320	4 1,260	27 1,300	17 1,360	8 1,520	30 1,290
25 1,320	16 1,280	7 1,270	29 1,370	20 1,260	10 1,430	December
27 1,550	19 1,270	9 1,250	July	22 1,250	12 1,310	3 1,330
30 2,020	21 1,290	11 1,280	1 1,350	24 1,300	15 1,390	5 1,430
February	23 1,310	14 1,280	4 1,360	27 1,340	17 1,730	7 1,660
1 2,200	26 1,310	16 1,320	6 1,390	29 1,280	19 1,400	10 1,900
3 1,630	28 1,280	18 1,440	9 1,300	31 1,310	22 1,370	12 1,810
6 1,220	30 1,320	21 1,710	11 1,300	September	24 1,330	14 1,450
8 1,110	April	23 1,890	13 1,300	3 1,310	26 1,440	17 1,770
10 1,130	2 1,280	25 1,890	16 1,370	5 1,240	29 1,420	19 1,460
13 1,150	4 1,270	28 1,440	18 1,290	7 1,930	31 1,590	21 1,370
15 1,050	6 1,270	30 1,300	20 1,280	10 2,010	November	24 1,530
17 1,060	9 1,290	June	23 1,370	12 1,750	2 1,740	26 1,440
20 1,610	11 1,280	1 1,350	25 1,560	14 1,750	5 1,590	28 1,560
22 1,400	13 1,410	4 1,360	27 1,340	17 1,470	8 2,020	31 1,470

Puertecitos Drain and Los Indios Drain near Cd. Diaz Ordaz, Tamaulipas

LOCATION: For Puertecitos Drain, at a point about 8,500 feet (2,600 m) from the confluence with the Rio Grande, which is located at river mile 219.3 (352.9 km); and, for Los Indios Drain, at a point about 2,150 feet (650 m) from its confluence with Puertecitos Drain. These two drains join at a point about 4,250 feet (1,300 m) from the confluence with the Rio Grande. These drains carry wastewater from the Lower Rio San Juan Irrigation District in Mexico.

RECORDS: Specific conductance, 1960 through 1984.

REMARKS: Sampling and determinations by the International Boundary and Water Commission.

SPECIFIC CONDUCTANCE OF WATER SAMPLES IN MICROMHOS/CM @ 25 DEG C - 1984

Date	Puertecitos Drain	Los Indios Drain	Date	Puertecitos Drain	Los Indios Drain	Date	Puertecitos Drain	Los Indios Drain	Date	Puertecitos Drain	Los Indios Drain
Jan. 3	2,910	2,330	Mar. 29	3,130	2,420	July 18	3,110	2,420	Oct. 3	2,790	2,540
25	2,730	2,120	Apr. 19	3,030	2,070	31	3,020	2,380	17	2,710	2,510
31	2,550	2,430	26	3,050	2,180	Aug. 15	2,870	2,370	31	2,730	2,370
Feb. 29	3,310	2,450	May 3	3,120	2,210	29	2,800	2,530	Nov. 13	2,340	2,410
Mar. 8	3,300	2,430	21	3,300	2,580	Sep. 5	2,830	2,510	30	2,820	2,390
22	3,360	2,460	June 20	3,190	2,440	13	2,800	2,450	Dec. 5	2,920	2,550
			July 4	3,150	2,450	27	2,770	2,390	19	2,930	2,460

QUALITY OF WATER - 1984

Rio Grande at Los Ebanos, Texas near Cd. Diaz Ordaz, Tamaulipas

LOCATION: Gaging station at river mile 204.3 (328.8 km) 34.0 river miles (54.7 km) upstream from Anzalduas Dam.
 RECORDS: Chemical analyses, June 1977 through 1984; specific conductance, 1956 through 1984.
 REMARKS: Sampling by the International Boundary and Water Commission; chemical analyses by the U.S. Geological Survey; specific conductance determinations by the International Boundary and Water Commission.

1984	Time	Streamflow, Momentary	Specific Conductance	pH	Temper- ature	Hardness, Total (as CaCO ₃)	Hardness, Noncarbonate (as CaCO ₃)	Calcium ion (Ca), Dissolved	Magnesium ion (Mg), Dissolved
Date	Standard	Second-Foot	Micromhos	Units	Deg C	mg/L	mg/L	mg/L	mg/L
Jan. 16	1415	6,330	1,190	7.9	19.0	290	180	77	24
Feb. 13	1400	818	1,180	8.0	20.5	310	170	88	23
Mar. 20	1350	1,460	1,300	7.8	23.0	320	200	85	25
Apr. 18	1245	11,900	1,170	7.6	23.5	300	180	82	24
May 15	1400	13,200	1,210	7.8	25.0	300	180	79	24
June 12	1415	2,800	1,180	7.7	29.0	290	190	76	24
July 17	1300	2,260	1,240	7.9	30.0	320	200	85	26
Aug. 14	1230	4,080	1,170	7.9	30.0	260	160	65	24
Sep. 17	1320	345	1,750	7.8	19.0	380		97	33
Oct. 18	1045	210	1,540	7.7	26.5	330	210	98	28
Nov. 19	1400	910	1,270	8.1	18.5	290	180	75	25
Dec. 26	1235	1,400	1,280	7.8	21.5	310	190	83	24

1984	Sodium ion (Na), Dissolved	Sodium Adsorption Ratio(SAR)	Potassium ion (K), Dissolved	Alkalinity Total (as CaCO ₃)	Sulfate ion (SO ₄), Dissolved	Chloride ion (Cl), Dissolved	Silica (SiO ₂), Dissolved	Solids Dissolved (Calculated)
Date	mg/L		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Jan. 16	130	3.3	5.0	110	280	140	12	734
Feb. 13	140	3.4	4.3	140	230	170	8.4	748
Mar. 20	150	3.7	4.7	120	300	170	10	817
Apr. 18	130	3.2	5.3	120	280	140	11	744
May 15	140	3.5	5.2	120	280	150	12	762
June 12	140	3.6	4.9	110	280	150	13	754
July 17	150	3.7	5.5	120	280	160	13	792
Aug. 14	140	3.8	5.4	97	280	140	11	724
Sep. 17	230	5.1	6.1	130	380	270	16	
Oct. 18	190	4.5	5.3	120	330	220	16	950
Nov. 19	160	4.1	5.4	110	290	180	12	814
Dec. 26	150	3.7	5.7	120	290	178	13	808

SPECIFIC CONDUCTANCE OF WATER SAMPLES IN MICROMHOS/CM @ 25 DEG C - 1984

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1,250	2,020	1,510	1,310	1,190	1,270	1,230	1,280	1,290	615	1,350	1,280
2	1,320	2,220	1,510	1,300	1,180	1,270	1,150	1,210	1,240	870	1,980	1,310
3	1,320	2,220	1,510	1,250	1,180	1,270	1,140	1,300	1,250	903		1,280
4	1,310	2,230	1,290	1,260	1,200	1,270	1,140	1,220	1,230	1,320	1,990	1,420
5	1,250	2,240	1,270	1,240	1,170	1,040	1,220	1,280		1,340	1,980	1,430
6	1,250	1,710	1,260	1,190		1,040	1,220	1,210	1,290	1,530	2,250	1,430
7	1,250	1,680	1,420	1,190	1,170	1,180	1,200	1,260	1,200	1,540	2,260	1,430
8	1,220	1,690	1,420	1,190	1,170	1,200	1,220	1,200	1,270	1,540	2,270	1,880
9	1,230	1,200	1,430	1,180	1,170	1,190	1,230	1,190	1,510	1,730	2,270	1,900
10	1,260	1,200	1,420	1,190	1,170	1,190	1,240	1,200	1,510	1,740	1,580	1,890
11	1,250	1,200	1,430	1,180	1,210	1,190	1,230	1,200	1,510	1,330	1,550	1,900
12	1,240	1,230	1,440	1,180	1,210	1,170	1,240	1,200	2,200	1,310	1,530	2,130
13	1,240	1,230	1,490	1,190	1,190		1,250	1,220	2,230	1,380	1,410	2,120
14	1,170	1,220	1,490	1,170	1,210	1,190	1,240	1,220	1,650	1,390	1,410	2,140
15	1,150	1,230	1,490	1,170	1,250	1,180	1,230	1,220	1,620	1,390	1,410	2,130
16	1,170	1,230	1,380	1,170	1,200	1,280	1,230	1,160	1,630	1,390	1,470	1,910
17		1,230	1,380	1,170	1,230	1,290	1,270	1,150	1,660	1,390	1,470	1,890
18	1,170		1,330	1,180	995	1,290	1,280	1,150	1,660	1,410	1,470	1,500
19	1,170		1,330	1,170	1,340	1,290	1,270	1,150	1,850	1,410	1,330	1,470
20	1,170		1,300	1,220	1,510	1,490	1,270	1,160	1,870	1,400	1,310	1,470
21	1,210		1,290	1,180	1,620	1,500	1,270	1,160	1,960	1,520	1,260	1,370
22	1,200		1,430	1,170	1,420	1,500	1,290	1,160	1,970	1,430	1,270	1,370
23	1,220		1,410	1,189	1,710	1,270	1,300	1,240	2,270	1,360	1,250	1,370
24		1,320	1,410	1,170	1,710	1,260	1,370	1,230	2,280	1,350	1,350	1,390
25	1,380	1,320	1,350	1,170		1,260	1,360	1,260	1,740	1,350	1,360	
26	1,390	1,320	1,340	1,170	1,940	1,270	1,250	1,300	1,710	1,330	1,360	1,510
27	1,400	1,220	1,340	1,170	1,960	1,270	1,260	1,300	1,610	1,350	1,250	1,510
28	1,400	1,220	1,340	1,170	1,530	1,250	1,260	1,300	1,600	1,350	1,250	1,510
29	2,010	1,220	1,280	1,170	1,530	1,240	1,270	1,320	1,610	1,350	1,260	1,520
30	2,020		1,230	1,170	1,440	1,230	1,250	1,300	791	1,330	1,220	1,760
31	2,020		1,290		1,420		1,260	1,310		1,340		1,770

QUALITY OF WATER - 1984

Rio Grande at Penitas, Texas and Reynosa Diaz, Tamaulipas

LOCATION: At the H.C.W.C. & I. District No. 1 (Edinburg) pumping plant, river mile 186.6 (300.4 km), 16.3 river miles (26.2 km) upstream from Anzalduas Dam.

RECORDS: Specific conductance, 1963 through 1984.

REMARKS: Sampling and determinations by the International Boundary and Water Commission.

SPECIFIC CONDUCTANCE OF WATER SAMPLES IN MICROMHOS/CM @ 25 DEG C - 1984

January	March	April	June	August	September	November
2 1,370	2 1,270	25 1,170	13 1,220	3 1,230	24 1,900	12 2,120
4 1,340	5 1,560	27 1,170	15 1,270	6 1,200	26 1,840	14 1,590
6 1,410	7 1,380	30 1,180	18 1,240	8 1,230	28 1,940	16 1,550
16 1,200	9 1,330	May	20 1,210	10 1,190	October	19 1,560
20 1,200	12 1,380	2 1,200	22 1,340	13 1,180	1 1,740	21 1,330
23 1,210	14 1,590	4 1,180	25 1,300	15 1,210	3 660	23 1,310
25 1,220	16 1,670	7 1,170	27 1,240	17 1,220	5 849	26 1,350
27 1,290	19 1,380	9 1,180	29 1,250	20 1,280	8 1,470	28 1,330
30 1,390	21 1,390	11 1,200	July	22 1,210	10 1,590	30 1,280
February	23 1,420	14 1,170	2 1,220	24 1,240	12 1,860	December
1 1,410	26 1,440	16 1,260	4 1,160	27 1,280	15 1,370	3 1,310
3 1,610	28 1,410	18 1,260	6 1,230	29 1,320	17 1,440	5 1,390
6 2,009	30 1,300	21 1,270	9 1,240	31 1,300	19 1,550	7 1,390
8 2,430	April	23 1,290	11 1,220	September	22 1,560	10 1,400
10 2,470	2 1,310	25 1,300	13 1,200	3 1,260	24 1,550	12 1,620
13 1,570	4 1,220	28 1,400	16 1,230	5 1,280	26 1,530	14 2,270
15 1,310	6 1,220	30 1,480	18 1,330	7 1,340	29 1,320	17 2,540
17 1,250	9 1,190	June	20 1,300	10 1,340	31 1,380	19 1,590
20 1,310	11 1,200	1 1,270	23 1,320	12 1,320	November	21 1,480
22 1,400	13 1,230	4 1,380	25 1,350	14 1,330	2 1,450	23 1,450
24 1,470	16 1,180	6 1,220	27 1,390	17 1,600	6 1,530	25 1,770
27 1,630	18 1,180	8 1,180	30 1,290	19 1,890	7 1,740	27 1,610
29 1,390	20 1,170	11 1,180	August	21 1,920	9 2,060	31 1,610
	23 1,170		1 1,230			

Morillo Drain near Anzalduas Dam

LOCATION: At the Morillo Drain Project pumping plant located about 0.4 river mile (0.6 km) from the confluence with the Rio Grande or at the gaging station on the bypass channel 0.4 mile (0.6 km) from the pumping plant. Morillo Drain enters the Rio Grande at river mile 179.1 (283.3 km), 8.8 river miles (14.2 km) upstream from Anzalduas Dam. This drain carries wastewater from the Lower Rio San Juan Irrigation District in Mexico and surface runoff during periods of heavy precipitation.

RECORDS: Chemical analyses, 1962 through 1984; specific conductance, 1956 through 1984.

REMARKS: Sampling by the International Boundary and Water Commission and chemical analyses by the U. S. Geological Survey. Determinations for specific conductance by the International Boundary and Water Commission.

1984	Time	Streamflow, Momentary	Specific Conductance	pH	Temper- ature	Hardness, Total (as CaCO ₃)	Hardness, Noncarbonate (as CaCO ₃)	Calcium ion (Ca), Dissolved	Magnesium ion (Mg), Dissolved
Date	Standard	Second-Foot	Micromhos	Units	Deg C	mg/L	mg/L	mg/L	mg/L
Jan. 17	1130	75.2	5,450	7.9	11.5	660	650	210	82
Feb. 14	0830	101	3,500	7.9	19.0	1,400	1,400	380	120
Mar. 20	0840	57.6	3,630	7.8	16.5	1,300	1,000	300	130
Apr. 18	1510	141	5,190	7.7	25.5	820	600	210	72
May 15	1000	272	4,420	7.8	25.0	720	520	190	59
June 14	0815	122	6,410	7.9	26.0	960	710	240	87
July 20	0805	67.1	5,580	7.9	26.5	870	670	210	83
Aug. 15	1520	46.6	5,630	7.9	28.0	900	690	220	85
Sep. 19	0750	54.0	6,570	7.8	21.5	990	750	230	100
Oct. 16	0845	51.9	6,410	7.9	25.5	960	740	230	95
Nov. 21	1015	38.3	7,040	8.0	12.0	1,000	770	250	99
Dec. 20	1115	32.5	7,420	7.9	21.0	1,200	910	280	110

1984	Sodium ion (Na), Dissolved	Sodium Adsorption Ratio(SAR)	Potassium ion (K), Dissolved	Alkalinity Total (as CaCO ₃)	Sulfate ion (SO ₄), Dissolved	Chloride ion (Cl), Dissolved	Silica (SiO ₂), Dissolved	Solids Dissolved (Calculated)
Date	mg/L		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Jan. 17	900	13	6.4	210	1,100	1,100	28	3,550
Feb. 14	1,503	17	9.1	263	1,603	2,003	37	5,800
Mar. 20	1,600	19	7.7	260	1,800	2,300	40	6,030
Apr. 18	830	13	6.8	220	1,100	1,000	30	3,380
May 15	630	11	7.2	209	890	850	29	2,830
June 14	1,100	15	7.6	250	1,300	1,300	39	4,220
July 20	960	14	7.4	200	1,100	1,100	32	3,610
Aug. 15	970	14	7.1	210	1,100	1,200	32	3,740
Sep. 19	1,103	15	6.8	240	1,100	1,400	38	4,120
Oct. 16	1,200	17	7.5	220	1,300	1,300	39	4,300
Nov. 21	1,300	18	6.7	260	1,400	1,500	43	4,760
Dec. 20	1,400	18	7.8	240	1,500	1,700	41	5,180

QUALITY OF WATER - 1984

Morillo Drain near Anzalduas Dam

SPECIFIC CONDUCTANCE OF WATER SAMPLES IN MICROMHOS/CM @ 25 DEG C - 1984

Date	Bypass Canal	Pumping Plant	Date	Bypass Canal	Pumping Plant	Date	Bypass Canal	Pumping Plant	Date	Bypass Canal	Pumping Plant
Jan. 2	6,410		Mar. 29	8,170		July 9	7,610		Oct. 4	6,530	
5	5,460		Apr. 2	7,430		12	7,550		8	6,360	
9	4,730		5	6,310		16	7,510		11	6,630	
12	4,910		9	5,520		17		5,580	15	6,540	
16	6,550		12	5,370	5,480	19	7,300		16		6,410
17		5,450	16	4,810	6,640	23	7,170		18	5,970	
19	5,450		18		5,190	26	6,400		22	4,730	
23	4,300	4,780	19	4,980	5,000	30	6,800		25	5,000	
26	3,300	3,480	23	4,710	4,710	Aug. 2	6,960		29	5,580	
30	6,720	6,700	26	4,390	4,870	5	6,700		Nov. 1	6,230	
Feb. 2	5,050	5,880	30	4,810	4,820	9	5,640		5	5,930	
5	7,500	6,250	May 3	5,050	5,040	13	6,640		8	6,640	
9		9,160	7	4,850	4,920	15		5,630	12	7,100	
9		8,270	10	4,670	4,670	16	5,240	5,260	15	7,000	
13	3,460	3,530	14	4,580	4,470	20	5,310	5,390	19	7,270	
14		8,500	15		4,420	23	5,760		21		7,040
16	9,540		17	3,970	3,960	27	5,520		22	7,120	
20	8,540		21	6,280	6,370	30	5,980		26	7,260	
23	6,680		24	5,380	6,460	Sep. 3	6,210		29	7,310	
27	8,820		June 4	4,980	4,690	5	6,080		Dec. 3	7,220	
Mar. 1	8,580		7	4,660	4,700	10	6,560		6	6,760	
5	8,650		11	5,060	5,150	13	6,940		10	7,060	
8	8,580		14	6,500	6,350	17	6,640		13	7,500	
12	3,400		14		6,410	19		5,570	17	7,460	
15	3,270		18	6,730		20	5,600		20	7,420	7,470
19	8,530		21	7,230	7,330	24	6,840		24	7,590	
20		8,630	July 2	7,930		27	5,890		27	7,380	
22	8,650		5	7,470		Oct. 1	5,940		31	6,510	

Rio Grande below Anzalduas Dam near Reynosa, Tamaulipas and Mission, Texas

LOCATION: At Anzalduas Dam, 0.5 river mile (0.8 km) above the gaging station, located at river mile 169.8 (273.3 km)

RECORDS: Chemical analyses, March 1959 through 1984; specific conductance 1948 and 1956 through 1984; suspended silt, May 1956 through 1977.

REMARKS: Sampling by the International Boundary and Water Commission; chemical analyses by the U.S. Geological Survey; determinations for specific conductance by the International Boundary and Water Commission.

1984	Time	Streamflow, Momentary	Specific Conductance	pH	Temperature	Hardness, Total (as CaCO3)	Hardness, Noncarbonate (as CaCO3)	Calcium ion (Ca), Dissolved	Magnesium ion (Mg), Dissolved
Date	Standard	Second-Feet	Micromhos	Units	Deg C	mg/L	mg/L	mg/L	mg/L
Jan. 17	1145	4,410	1,180	3.0	12.0	290	180	77	24
Feb. 14	0900	749	2,100	8.0	19.0	440	290	120	35
Mar. 20	0905	399	1,540	7.3	22.0	380	250	100	31
Apr. 18	1530	3,000	1,200	7.6	24.5	300	180	81	24
May 15	0930	4,730	1,260	7.9	25.0	300	180	80	24
June 14	0840	1,340	1,260	7.6	27.0	290	180	76	25
July 20	0915	614	1,410	7.8	27.0	310	200	79	27
Aug. 15	1310	2,670	1,260	7.9	28.5	270	180	68	25
Sep. 19	0915	1.4	1,490	7.7	25.5	130	210	97	28
Oct. 16	0930	411	1,920	8.0	26.0	420	260	110	35
Nov. 21	1105	333	1,590	9.1	18.0	370	240	98	31
Dec. 20	1130	375	2,250	7.9	21.5	530	350	140	43

1984	Sodium ion (Na), Dissolved	Sodium Adsorption Ratio(SAR)	Potassium ion (K), Dissolved	Alkalinity Total (as CaCO3)	Sulfate ion (SO4), Dissolved	Chloride ion (Cl), Dissolved	Silica (SiO2), Dissolved	Solids Dissolved (Calculated)
Date	mg/L		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Jan. 17	140	3.6	5.1	110	290	150	12	764
Feb. 14	280	5.8	5.3	160	400	370	11	1,320
Mar. 20	190	4.3	5.1	130	340	230	10	984
Apr. 18	140	3.5	4.9	120	290	150	11	773
May 15	150	3.8	5.0	120	290	150	12	793
June 14	150	3.8	5.3	110	290	170	13	795
July 20	170	4.2	5.7	110	320	200	14	882
Aug. 15	160	4.2	5.4	97	290	170	11	788
Sep. 19	180	4.3	5.9	120	300	230	15	918
Oct. 16	240	5.1	5.4	160	380	310	15	1,190
Nov. 21	200	4.5	5.7	130	340	240	14	1,010
Dec. 20	270	5.1	5.8	180	430	390	19	1,410

QUALITY OF WATER - 1984

Rio Grande below Anzalduas Dam near Reynosa, Tamaulipas and Mission, Texas

SPECIFIC CONDUCTANCE OF WATER SAMPLES IN MICROMHOS/CM @ 25 DEG C - 1984

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1,230	1,770	1,700	1,390	1,210	1,500	1,350	1,300	1,360	1,840	1,270	1,470
2	1,240	1,760	1,680	1,380	1,220	1,460	1,320	1,350	1,390	1,660	1,270	1,400
3	1,340	1,810	1,540	1,390	1,210	1,430	1,300	1,360	1,370	1,660	1,270	1,320
4	1,360	1,800	1,380	1,320	1,210	1,420	1,230	1,390	1,300	1,590	1,270	1,320
5	1,350	1,800	1,400	1,250	1,220	1,440	1,200	1,230	1,300	1,440	1,280	1,310
6	1,360	1,970	1,450	1,310	1,220	1,390	1,210	1,200	1,300	1,260	1,280	1,280
7	1,310	2,370	1,670	1,250	1,220	1,320	1,200	1,190	1,280	1,000	1,290	1,290
8	1,310	2,640	1,680	1,210	1,210	1,200	1,220	1,190	1,270	898	1,340	1,260
9	1,280	3,140	1,600	1,210	1,220	1,250	1,290	1,200	1,270	756	1,360	1,280
10	1,220	3,170	1,460	1,200	1,250	1,290	1,300	1,190	1,270	711	1,410	1,260
11	1,200	3,170	1,330	1,210	1,230	1,290	1,280	1,180	1,280	721	1,460	1,250
12	1,210	3,310	1,340	1,200	1,240	1,280	1,250	1,190	1,290	860	1,720	1,260
13	1,230	2,850	1,350	1,200	1,240	1,270	1,190	1,180	1,280	1,320	2,090	1,260
14	1,270	2,070	1,240	1,190	1,230	1,260	1,190	1,170	1,260	1,620	2,320	1,260
15	1,190	1,830	1,450	1,210	1,250	1,360	1,220	1,170	1,280	1,860	2,620	1,270
16	1,200	1,720	1,590	1,200	1,280	1,350	1,200	1,270	1,330	1,920	2,310	1,280
17	1,170	1,500	1,740	1,200	1,390	1,330	1,220	1,270	1,360	1,640	1,920	1,330
18	1,170	1,500	1,800	1,200	1,310	1,310	1,240	1,260	1,480	1,420	1,660	1,430
19	1,190	1,480	1,740	1,200	1,370	1,270	1,270	1,210	1,500	1,380	1,560	1,520
20	1,200	1,420	1,580	1,200	1,420	1,270	1,430	1,190	1,510	1,410	1,600	2,020
21	1,240	1,440	1,490	1,230	1,200	1,270	1,330	1,200	1,550	1,500	1,600	2,320
22	1,240	1,450	1,430	1,220	1,250	1,330	1,300	1,180	1,730	1,620	1,570	1,890
23	1,250	1,500	1,390	1,220	1,280	1,340	1,290	1,200	1,950	1,680	1,430	1,710
24	1,240	1,540	1,390	1,220	1,400	1,570	1,280	1,190	2,230	1,670	1,360	1,570
25	1,250	1,540	1,390	1,220	1,750	1,560	1,320	1,200	2,260	1,680	1,360	1,520
26	1,440	1,570	1,420	1,220	1,880	1,280	1,370	1,270	2,110	1,630	1,310	1,490
27	1,350	1,610	1,440	1,210	2,180	1,260	1,540	1,220	2,010	1,560	1,290	1,460
28	1,500	1,550	1,470	1,230	2,240	1,320	1,390	1,260	1,870	1,490	1,310	1,450
29	1,550	1,680	1,500	1,210	2,170	1,300	1,370	1,220	1,940	1,450	1,380	1,460
30	1,670		1,510	1,220	2,220	1,310	1,300	1,240	1,930	1,380	1,490	1,430
31	1,800		1,500		1,850		1,290	1,350		1,300		1,400

QUALITY OF WATER - 1984

**Rio Grande at Mercedes Irrigation District Pumps
near Mercedes, Texas and Rio Rico, Tamaulipas**

LOCATION: At river mile 117.8 (189.5 km), 52.6 river miles (84.6 km) downstream from Anzalduas Dam.
RECORDS: Specific conductance, 1945 through 1984.
REMARKS: Sampling and determinations by the International Boundary and Water Commission.

SPECIFIC CONDUCTANCE OF WATER SAMPLES IN MICROMHOS/CM @ 25 DEG C - 1984

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1,650	1,640	1,860	1,550	1,220	2,170	1,320	1,460	1,350	1,900	1,500	1,510
2	1,350	1,750	1,780	1,510	1,240	2,100	1,330	1,350	1,340	1,900	1,540	1,510
3	1,300	1,970	1,680	1,350	1,230	1,830	1,230	1,320	1,340	1,910	1,550	1,510
4	1,300	1,980	1,630	1,400	1,230	1,580	1,290	1,350	1,340	1,830	1,550	1,430
5	1,330	1,940	1,830	1,390	1,220	1,360	1,320	1,430	1,330	1,820	1,550	1,370
6	1,400	1,940	1,900	1,320	1,240	1,460	1,260	1,490	1,330	954	1,590	1,390
7	1,670	1,960	1,540	1,270	1,210	1,460	1,350	1,330	1,330	948	1,630	1,370
8	1,290	1,950	1,550	1,340	1,250	1,490	1,200	1,280	1,350	1,360	1,600	1,410
9	1,320	1,940	1,550	1,240	1,240	1,360	1,290	1,270	1,350	1,530	1,580	1,410
10	1,370	1,940	1,590	1,220	1,240	1,240	1,250	1,270	1,350	1,340	1,550	1,400
11	1,310	1,990	1,840	1,210	1,230	1,220	1,190	1,270	1,690	1,850	1,550	1,470
12	1,310	1,980	1,750	1,210	1,250	1,310	1,250	1,240	1,700	1,850	1,560	1,590
13	1,250	1,970	1,630	1,210	1,250	1,300	1,280	1,220	1,700	1,260	1,570	1,470
14	1,260	2,030	1,620	1,220	1,240	1,310	1,320	1,230	1,700	1,230	1,550	1,470
15	1,400	2,080	1,520	1,210	1,260	1,300	1,330	1,250	1,700	956	1,630	1,460
16	1,310	2,950	1,490	1,220	1,250	1,380	1,320	1,290	1,700	1,500	1,720	1,460
17	1,250	2,980	1,530	1,210	1,240	1,270	1,240	1,300	1,700	1,210	2,380	1,460
18	1,210	2,910	1,480	1,220	1,290	1,290	1,230	1,290	1,700	1,200	2,420	1,560
19	1,200	2,170	1,550	1,220	1,350	1,350	1,250	1,290	1,480	1,430	2,420	1,530
20	1,350	1,920	1,720	1,210	1,450	1,380	1,270	1,290	1,470	1,450	2,040	1,510
21	1,290	1,310	1,820	1,210	1,420	1,290	1,320	1,290	1,380	1,440	1,840	1,560
22	1,290	1,660	1,340	1,210	1,430	1,270	1,340	1,290	1,350	1,790	1,680	2,200
23	1,230	1,550	1,770	1,220	1,350	1,260	1,430	1,300	1,590	1,490	1,680	2,210
24	1,230	1,650	1,610	1,210	1,310	1,310	1,390	1,300	1,700	1,600	1,590	2,210
25	1,280	1,550	1,490	1,220	1,350	1,280	1,350	1,300	1,730	1,670	1,590	1,980
26	1,230	1,650	1,450	1,210	1,560	1,300	1,310	1,300	1,740	1,610	1,590	1,970
27	1,280	1,550	1,450	1,230	1,590	1,550	1,310	1,300	1,770	1,580	1,440	1,850
28	1,340	1,680	1,440	1,210	1,530	1,330	1,470	1,290	2,130	1,630	1,390	1,810
29	1,230	1,730	1,470	1,210	1,590	1,490	1,470	1,250	2,140	1,670	1,370	1,520
30	1,340		1,510	1,220	1,320	1,320	1,470	1,250	2,150	1,690	1,520	1,510
31	1,320		1,510		2,120		1,420	1,250		1,370		1,510

QUALITY OF WATER - 1984

Rio Grande near Brownsville, Texas and Matamoros, Tamaulipas

LOCATION: Gaging station at river mile 48.7 (79.3 km), 0.2 river mile (0.3 km) downstream from El Jardin pumping plant and 7.0 river miles (11.2 km) downstream from the international highway bridge between Brownsville, Texas and Matamoros, Tamaulipas.

RECORDS: Chemical and biochemical analyses, October 1967 through January 1968 and October 1974 through 1984; biochemical, December 1976 through 1984; specific conductance, 1955 through September 1984; suspended silt, 1955 through 1977.

REMARKS: Sampling and analyses by the U. S. Geological Survey. Additional water quality parameters, including heavy metals, nutrients, pesticides, and biological indices, determined and published by the U. S. Geological Survey. Sampling and determinations for specific conductance prior to 1978 by the International Boundary and Water Commission.

1984 Date	Time Std.	Stream- flow, Momen- tary Sec.-Ft.	Specific Conduct- ance Micromhos	pH Units	Temper- ature Deg. C	Hard- ness, Total (as CaCO ₃) mg/L	Hard- ness, Noncar- bonate (as CaCO ₃) mg/L	Calcium ion (Ca), Dis- solved mg/L	Magne- sium ion (Mg) mg/L	Sodium ion (Na), Dis- solved mg/L	Sodium Adsor- ption Ratio (SAR)	Potassium ion (K), Dissolved mg/L
Jan. 24 Feb. Mar. Apr.	1600	137	1,310	8.0	9.5	320	200	84	26	140	3.4	5.2
May June	1330	64.5	1,260	8.3	30.0	310	190	32	25	140	3.5	5.4
July 16 Aug. Sept. Oct.	1445	569	1,300	8.5	29.5	310	210	80	25	160	4.0	5.6
Nov. 1 Dec.	1630	364	1,400	8.4	28.0	350	220	95	29	180	4.1	5.5

1984 Date	Alka- linity Total (as CaCO ₃) mg/L	Sulfate ion (SO ₄), Dis- solved mg/L	Chlor- ide ion (Cl), Dis- solved mg/L	Silica (SiO ₂), Dis- solved mg/L	Oxygen, Dis- solved (DO) mg/L	Coli- form, Fecal Cols./ 100 mL	Oxygen Demand, Bio- Chemical (BOD) 5 Day mg/L	Tur- bidity NTU	Solids Dis- solved (Calcu- lated) mg/L	Solids Dis- solved (Residue @ 180 Deg. C) mg/L	Sus- pended Sedi- ment mg/L
Jan. 24 Feb. Mar. Apr.	121	290	150	11	12.0	300	1.4	7.1	799	795	13
May June	116	300	160	11	10.6	48	1.9	26	300	310	43
July 16 Aug. Sept. Oct.	103	290	130	12	7.3	170	2.4	26	320	324	27
Nov. 1 Dec.	140	330	220	16	8.4	1,100	3.1	35	950	959	48

RAINFALL ON THE RIO GRANDE WATERSHED IN THE UNITED STATES In Inches

Tabulated below, in approximate downstream order, are monthly records of United States rainfall stations with averages for their periods of record. With the exception of Las Cruces, New Mexico, all stations are located in Texas. For location, elevation, period of record, type of gage in use, watershed subdivision in which the station is located, and the observer, see alphabetical listing of these stations shown on pages 131 through 133 in this bulletin. These rainfall records have not been published elsewhere. Records of daily rainfall amounts, where available, are on file in the office of the United States Section of the Commission. Daily records for years prior to 1953 may also be found in corresponding water bulletins.

Detailed listings of the months and years for which records are available through 1970 may be found under "Index to Precipitation Records" in Water Bulletins 10, 14, 26, and Supplement 40A.

Month	Las Cruces, New Mexico		American Dam		Fort Hancock Bridge		Guayuco Arroyo		Neely Ranch	
	1984	Average	1984	Average	1984	Average	1984	Average	1984	Average
Jan.	0.62	0.75	0.28	0.42	1.42	0.41	0.95	0.32		0.34
Feb.	0	.37	0	.38	0	.31	0	.20		.20
Mar.	.26	.22	.22	.31	.03	.25	.01	.22	.07	.17
Apr.	0	.30	0	.22	0	.30	0	.20	0	.17
May	.74	.55	.65	.27	.04	.48	.45	.41	.30	.35
June	1.81	.84	2.81	.57	2.29	.83	1.05	.59	2.19	.81
July	.29	.95	.74	1.45	.27	1.26	1.15	1.30	.94	1.55
Aug.	4.24	2.63	5.05	1.46	1.54	1.61	2.15	1.63	2.93	1.81
Sep.	.36	1.37	.40	1.12	.83	1.47	.35	1.22	1.58	1.60
Oct.	2.91	1.05	3.31	.82	3.09	1.00	1.53	.95		.97
Nov.	1.64	.87	.50	.30	.81	.37	1.00	.26	.88	.29
Dec.	2.22	.79	1.88	.44	1.05	.45	.48	.36	.94	.43
Yearly	15.09	10.69	15.84	7.76	11.38	3.74	9.12	7.57		8.82

Month	96 Ranch Headquarters		La Macolla Farm		Bill Shannon Ranch		Adobes Ranch		Shafter	
	1984	Average	1984	Average	1984	Average	1984	Average	1984	Average
Jan.	0.50	0.58	0	0.38	0.30	0.48	0.50	0.38		0.24
Feb.	0	.45	0	.50	0	.37	0	.23		.38
Mar.	.10	.28	0	.12	0	.33	0	.18		.35
Apr.	T	.18	0	.56	0	.31	0	.12		.73
May	1.40	1.19	1.20	.95	1.40	.77	1.76	.69	2.38	.91
June	5.80	2.25	4.65	1.65	4.40	1.71	1.00	1.29	5.62	2.73
July	2.30	3.98	2.15	1.43	4.00	2.21	1.60	2.02	3.24	3.29
Aug.	3.80	3.02		2.84	2.40	2.62	1.90	1.84	1.04	3.10
Sep.	1.20	4.38		2.43	1.30	2.61	1.00	2.16	1.61	3.67
Oct.	3.30	1.42	2.19	1.34	2.65	1.32	.80	.75	1.13	1.36
Nov.	1.70	.68	0	.35	1.10	.49	.80	.30	1.31	.48
Dec.	2.10	.77	.70	.34	.70	.42	1.75	.32	2.09	.40
Yearly	22.20	19.27		12.80	18.95	13.64	11.11	10.28		17.69

Month	Presidio (IB&WC Gage)		Kerr Mitchell Ranch		H. T. Fletcher Ranch		La Mota Ranch		Radford	
	1984	Average	1984	Average	1984	Average	1984	Average	1984	Average
Jan.	0.73	0.31	0.45	0.52	0.70	0.71	0.17	0.69	0.40	0.31
Feb.	0	.19	0	.35		.35	0	.14	0	.20
Mar.	T	.17	0	.20		.35	0	.25	0	.19
Apr.	0	.25	0	.45		.43	0	.65	0	.31
May	1.76	.56	4.50	1.14	2.50	1.06	2.67	1.07	.75	.48
June	3.78	1.30	7.00	1.93	7.35	1.85	3.52	2.02	4.10	1.12
July	.64	1.43	2.15	1.39	2.00	2.99	1.36	1.15	1.30	1.43
Aug.	.70	1.36	2.27	2.28	2.80	3.23	1.51	1.75	.39	1.30
Sep.	2.11	1.51	1.00	2.05	1.80	2.59	2.04	2.06	1.11	1.87
Oct.	2.00	.78	4.13	1.38	2.50	1.40	2.17	.93	.33	.92
Nov.	1.08	.34	1.50	.40	1.30	.48	1.20	.47	.90	.48
Dec.	1.55	.29	2.00	.42	2.50	.44	1.38	.39	1.63	.31
Yearly	14.35	3.49	25.30	13.11		15.87	16.02	11.63	11.76	8.32

T Trace

RAINFALL ON THE RIO GRANDE WATERSHED IN THE UNITED STATES

In Inches

Month	Study Butte		Terlingua Creek Station		Johnson Ranch		Yarborough Ranch		Lewis James Ranch	
	1984	Average	1984	Average	1984	Average	1984	Average	1984	Average
Jan.	0.22	0.60	0.20	0.30	0.20	0.31	0	0.28	1.22	0.50
Feb.	0	.15	0	.21	0	.23	0	.40	T	.55
Mar.	0	.12	0	.14	0	.17	.02	.29	0	.34
Apr.	0	.55	0	.38	0	.41	0	.33	0	1.15
May	2.98	1.57	0	.72	0	1.00	1.78	.91	3.45	1.59
June	0	1.47	1.80	1.09	1.10	1.17	5.85	2.02	1.00	1.11
July	.47	1.36	.75	1.24	2.20	1.16	1.10	2.49	0	1.25
Aug.	1.05	1.47	0	1.18	.40	.90	2.72	2.88	0	2.03
Sep.	.66	1.10	.55	1.29	.75	1.35	3.33	3.07	1.72	2.92
Oct.	1.12	1.02	.40	.77	.80	.69	2.48	1.67	1.83	1.60
Nov.	1.12	.36	1.05	.23	.70	.23	1.29	.64	1.73	.82
Dec.	.49	.26	.40	.25	.30	.29	1.16	.53	1.08	.45
Yearly	8.11	10.03	5.15	7.80	6.45	7.91	20.73	15.51	12.08	14.32

Month	Ross Foster Ranch		Owens Ranch		Prosser Ranch No. 3		Ranchita (Continental)		Rio Grande near Dryden	
	1984	Average	1984	Average	1984	Average	1984	Average	1984	Average
Jan.	1.15	0.43	1.60	0.46	1.67	0.45	2.50	0.55	1.30	0.68
Feb.	.04	.54	0	.61	.20	.83	0	.68	.02	.20
Mar.	0	.27	.30	.96	.20	.57	0	.65	0	.19
Apr.	0	.96	0	2.02	0	1.43	0	1.40	0	.92
May	1.30	1.20	2.30	2.11	.30	2.09	.80	1.97	1.15	1.23
June	1.95	1.29	0	2.98	1.20	1.49	.80	2.02	1.14	.91
July	.80	.61	1.52	1.14	1.70	1.43	3.00	1.62	.01	.64
Aug.	T	1.22	.15	1.81	.25	1.86	.20	2.36	.01	2.11
Sep.	1.70	1.67	1.05	2.45	3.90	3.23	3.00	2.66	1.39	1.74
Oct.	1.10	1.14	3.48	2.47	1.00	2.15	1.90	2.33	2.93	.82
Nov.	1.08	.47	1.10	1.32	1.60	.73	2.40	.72	.58	.74
Dec.	2.05	.45	.57	.57	2.95	.51	2.40	.57	1.20	.48
Yearly	11.17	10.25	12.07	18.00	14.07	16.77	17.00	17.58	9.77	10.71

Month	Pecos River near Langtry Station		Deadmans Canyon near Comstock		Prosser Ranch No. 1		Continental Ranch		Martin King Ranch	
	1984	Average	1984	Average	1984	Average	1984	Average	1984	Average
Jan.	1.55	0.43	2.25	0.54	1.75	0.43	2.50	0.63	1.87	0.53
Feb.	0	.79	0	.71	.05	.76	0	.31	0	.75
Mar.	0	.48	.15	.60	.10	.50	0	.68	.08	.33
Apr.	0	1.09	0	1.27	0	1.37	0	1.62	.20	1.91
May	0	1.14	1.10	1.88	.40	2.14	.80	2.72	.77	1.43
June	1.20	1.94	.80	2.21	1.10	1.73	.90	2.02	2.13	1.69
July	3.45	1.51	3.65	2.30	1.15	1.97	1.50	2.41	3.46	1.48
Aug.	.05	1.52	0	1.73	.55	1.89	.20	2.32	.01	1.48
Sep.	2.20	2.24	3.50	2.58	2.20	2.81	3.30	3.64	2.65	2.49
Oct.	2.20	1.75	2.15	1.93	1.75	2.08	2.70	2.54	3.88	2.24
Nov.	1.70	.78	1.80	.86	1.80	.73	2.60	.73	2.26	.62
Dec.	2.80	.50	2.20	.54	1.85	.45	2.90	.53	2.35	.51
Yearly	15.15	14.17	17.60	17.20	12.70	16.91	17.30	20.70	19.66	14.61

Month	Brotherton Ranch		Walker Ranch		Zuberbueler Ranch		P. W. Kelly Ranch		Comstock	
	1984	Average	1984	Average	1984	Average	1984	Average	1984	Average
Jan.	1.79	0.64	1.32	0.44	1.55	0.54	1.46	0.50	1.61	0.57
Feb.	.12	.88	T	.71	.55	.99	0	.35	0	.31
Mar.	0	.53	.20	.50	0	.44	0	.71	0	.59
Apr.	0	1.03	.15	1.15	.05	1.20	0	1.19	0	1.37
May	.33	1.51	.50	1.99	.92	1.33	.68	2.10	.65	1.91
June	2.06	1.31	.50	2.32	1.63	1.38	1.71	2.17	2.90	2.14
July	2.85	1.58	0	1.54	3.95	2.49	1.75	2.92	5.38	1.41
Aug.	0	1.75	.20	1.24	0	1.10	.22	1.93	.95	1.77
Sep.	2.98	2.46	2.49	3.20	3.87	2.04	3.29	2.95	3.04	2.32
Oct.	3.29	1.91	1.40	1.99	4.00	1.63	2.79	1.30	2.45	1.35
Nov.	1.97	.62	2.40	.80	2.45	.94	3.15	.90	2.27	.65
Dec.	1.74	.44	1.60	.47	2.27	.72	1.01	.73	1.25	.64
Yearly	17.63	15.16	0	15.25	21.40	15.35	0	17.51	19.61	15.92

T Trace

**RAINFALL ON THE RIO GRANDE WATERSHED
IN THE UNITED STATES**

In Inches

Month	Cow Creek near Coamstock		Amistad Reservoir near Coamstock		Feely		Line Store		W. E. Sawyer Ranch	
	1984	Average	1984	Average	1984	Average	1984	Average	1984	Average
Jan.		0.32	2.05	0.38	0	0.34	2.17	0.56	2.30	0.50
Feb.		.49	.01	.60	.25	.73	0	.93	0	.91
Mar.	0	.42	0	.43	0	.47	.57	.75	.72	.94
Apr.	0	1.20	0	1.46	0	1.35	.05	1.92	.20	1.90
May	0	.94	.55	1.40	.08	1.73	1.50	2.15	.34	2.37
June	0	1.33	.80	1.49	.12	1.85	1.53	1.75	.46	1.87
July		1.52	1.75	1.26		1.39	2.76	2.02	.90	1.95
Aug.		1.90	0	1.67		1.81	.45	2.34	.12	2.76
Sep.		2.05	3.50	1.79		2.08	1.89	3.38	1.45	3.04
Oct.		1.53	1.95	1.74		1.82	4.73	2.14	4.75	2.30
Nov.	1.67	.64	2.50	.74	1.75	.61	1.53	.93	1.40	.95
Dec.	2.53	.45	1.60	.35	2.70	.45	2.19	.54	4.69	.77
Yearly		12.79	14.91	13.32		14.64	19.54	19.42	17.33	20.26

Month	Prosser Ranch No. 2		Devils River at Cauthorn Ranch		Vinegarone		Eugene Miller Ranch		H. K. Fawcett Ranch	
	1984	Average	1984	Average	1984	Average	1984	Average	1984	Average
Jan.	1.52	0.43	0.85	0.47	1.87	0.59	1.75	0.62	1.08	0.67
Feb.	.40	.90	0	.71	T	.87	0	.57	T	.76
Mar.	0	.60	0	.49	0	.76	.15	.67	0	.75
Apr.	0	1.43	0	1.15	.25	1.55	.02	1.53	.43	1.68
May	.60	2.19	1.61	2.21	.65	2.59	.75	3.03	1.12	2.32
June	1.30	1.82		1.85	.30	2.13	1.81	1.86	1.14	1.63
July	1.75	1.74	0	.42	1.45	2.03	2.11	2.84	.87	1.65
Aug.	1.05	2.19	.20	.97	1.35	2.89	.55	2.12	.30	2.20
Sep.	2.90	3.14	1.83	1.26	2.00	2.57	1.95	2.88	3.15	3.00
Oct.	1.10	2.06	2.31	2.54	2.10	2.63	2.47	2.63	2.95	2.41
Nov.	1.70	.75	1.68	.54	2.20	1.01	1.63	1.01	1.90	.37
Dec.	1.95	.45	2.07	.55	4.40	.66	1.90	.51	2.80	.54
Yearly	14.27	17.70		13.18	17.07	20.37	15.09	20.42	15.73	19.48

Month	Ed Crane Ranch		H. T. Miers Ranch Headquarters		H. T. Miers Ranch No. 2		A. A. Baker Ranch		Harlow Ranch	
	1984	Average	1984	Average	1984	Average	1984	Average	1984	Average
Jan.	1.79	0.79	1.47	0.61	1.12	0.49	1.55	0.46	1.45	0.40
Feb.	.12	1.04	T	1.04	T	.88	0	.74	T	.57
Mar.	.05	.57	T	.78	.05	.90	0	.55	0	.34
Apr.	.41	1.65	0	1.73	.08	1.58	.05	1.27	T	1.20
May	.93	2.53	1.15	2.54	1.42	2.44	.70	1.70	.60	1.31
June	1.48	2.16	1.10	2.61	1.11	2.14	1.12	1.86	.80	2.31
July	1.25	1.75	1.18	1.65	1.31	1.45	.54	1.50	0	1.30
Aug.	.03	1.12	0	1.95	.21	2.47	.95	1.79	.45	1.59
Sep.	3.14	2.50	2.30	2.44	2.72	2.60	3.12	2.89	2.45	2.47
Oct.	2.90	2.14	.52	2.81	1.45	2.27	2.59	1.91	1.30	2.00
Nov.	2.52	.87	1.90	.92	2.05	.99	2.35	.72	1.80	.65
Dec.	3.34	.74	2.50	.62	3.34	.63	1.75	.45	2.05	.44
Yearly	17.92	17.95	12.12	19.75	14.86	19.89	13.92	15.84	10.90	15.19

Month	Goldwire Ranch		Pafford Crossing		Big Satan Creek Station		Cliff Lowry Ranch No. 1		Lowry Ranch No. 2	
	1984	Average	1984	Average	1984	Average	1984	Average	1984	Average
Jan.	1.82	0.63	1.20	0.54	2.10	0.67	1.65	0.50	1.43	0.43
Feb.	T	.72	T	.77	T	.69	.09	1.04	.05	.38
Mar.	T	.78	T	.57	T	.89	.08	.81	0	.79
Apr.	0	1.65	0	1.32	0	1.46	.33	1.71	.20	1.67
May	1.10	2.44	.65	1.93	.60	2.28	1.67	2.40	1.22	2.07
June	.95	1.98	1.10	2.94	.75	1.33	1.05	2.14	.84	1.93
July	.15	2.23	0	1.72	1.55	2.17	.91	1.75	1.95	1.37
Aug.	.45	2.92	3.45	1.93	2.05	2.95	.32	2.30	1.83	2.42
Sep.	3.30	2.31	2.55	2.34	2.35	2.12	1.39	2.31	2.21	2.12
Oct.	1.15	2.35	.84	2.17	2.35	2.50	2.51	2.40	3.44	2.20
Nov.	1.90	.99	1.35	.79	2.75	1.05	1.21	1.24	1.50	.99
Dec.	2.40	.59	2.10	.54	3.25	.70	2.90	.60	3.13	.64
Yearly	13.22	19.58	17.74	17.21	17.54	19.42	15.67	19.50	17.10	13.95

T Trace

**RAINFALL ON THE RIO GRANDE WATERSHED
IN THE UNITED STATES
In Inches**

Month	Tuffy Whitehead Ranch		Stewart Ranch		Rough Canyon near Del Rio		Devils Lake		Sellers Ranch	
	1934	Average	1934	Average	1934	Average	1934	Average	1934	Average
Jan.	1.65	0.41	1.43	0.46	1.10	0.40	1.40	0.52	0.70	0.37
Feb.	.95	.75	.04	.87	0	.70	.04	.83	0	.75
Mar.	0	.61	.04	.95	0	.68	0	.51	.02	.51
Apr.	.25	1.37	.05	1.63	T	1.44	.14	1.61	.15	1.31
May	.72	1.59	1.19	1.82	1.30	1.87	1.23	1.84	1.70	1.67
June	1.05	1.92	.98	2.23	.70	2.04	1.94	2.30	2.40	2.42
July	2.58	1.44	.98	1.58	.35	1.98	1.50	1.33	.50	1.25
Aug.	.75	1.64	.45	1.80	.70	2.30	.65	1.75	.20	1.72
Sep.	2.19	2.63	1.56	2.32	2.75	2.93	1.75	2.24	2.10	2.32
Oct.	2.51	1.31	2.77	2.20	3.80	2.50	2.20	1.99	2.05	2.05
Nov.	1.57	.53	1.39	.36	1.80	.99	1.53	.75	1.50	.75
Dec.	2.57	.47	2.42	.53	3.15	.65	2.93	.72	2.24	.52
Yearly	16.00	15.35	13.30	17.10	15.65	17.38	15.41	16.59	13.66	15.65

Month	Evans Creek near Comstock		J. G. Brite Ranch		Hutto Ranch No. 1		Hutto Ranch No. 2		Middle Fork San Pedro	
	1934	Average	1934	Average	1934	Average	1934	Average	1934	Average
Jan.	1.35	0.34	1.33	0.40	1.42	0.52	1.42	0.54	1.35	0.47
Feb.	.05	.82	.12	.38	.10	.89	.12	.95	.10	.90
Mar.	0	.57	0	.57	.05	.71	.01	.69	0	.76
Apr.	0	1.21	.20	1.49	.13	1.94	.17	2.02	.05	1.81
May	1.30	1.47	1.43	1.94	2.20	1.97	1.68	1.75	1.90	2.07
June	1.80	2.13	2.23	2.26	1.33	2.22	1.45	2.29		2.30
July	1.20	1.80	.50	1.55	.95	1.97	1.55	1.99	.95	2.52
Aug.	.05	2.43	.17	2.07	0	1.98	.25	2.07	T	2.16
Sep.	2.70	2.60	2.59	3.00	.85	2.39	1.33	2.95	1.10	1.53
Oct.	.40	2.13	1.39	2.10	2.61	2.42	3.90	2.13		2.96
Nov.	.40	.93	1.47	.73	1.08	.90	1.31	1.02	1.20	1.03
Dec.	2.35	.52	2.22	.55	2.29	.59	1.90	.53	1.50	.65
Yearly		17.00	14.24	17.73	13.01	18.59	14.20	19.01		19.11

Month	North Fork San Pedro		Long Ranch		Buoy No. 11		Amistad Dam		Gillis Headquarters Ranch	
	1934	Average	1934	Average	1934	Average	1934	Average	1934	Average
Jan.	1.45	0.47	1.45	0.53	2.45	0.49	1.55	0.51	1.34	0.54
Feb.	.10	.73	.03	.78	.20	.65	.09	.85	.35	1.02
Mar.	.05	.77	0	.72	0	.46	.04	.72	.17	.87
Apr.	.10	1.74	.20	1.52	0	1.75	.11	1.30	.65	1.93
May	1.50	1.89	2.74	1.99	1.45	1.75	1.71	1.97	2.17	2.59
June	1.40	2.22	1.72	2.20		2.04	1.33	2.03	1.64	2.51
July	.50	2.46	1.94	2.14	1.50	1.74	1.17	1.75	1.62	2.32
Aug.	.20	2.20	.75	1.53	0	1.83	.24	2.14	.32	2.74
Sep.	1.70	1.73	3.35	1.84	3.12	2.13	1.82	3.34	1.17	1.77
Oct.	2.30	2.62	2.25	2.30	2.23	1.63	2.10	2.03	2.35	2.82
Nov.	1.30	1.05	1.40	.95	.74	.58	1.56	.92	1.73	1.30
Dec.	2.40	.64	2.55	.61	.48	.70	3.01	.63	3.00	.91
Yearly	13.90	10.37	13.54	17.25		15.70	14.55	18.91	16.16	21.47

Month	Lewis Ranch		Maverick County Canal Headgate		Wardlaw Standart Ranch		Pinto Creek Station		Las Moras Creek	
	1934	Average	1934	Average	1934	Average	1934	Average	1934	Average
Jan.	1.00	0.57	1.64	0.55	1.58	0.54	0.45	0.52	1.93	0.74
Feb.	.37	1.23	0	.23	.15	.95	0	.72	0	.87
Mar.	.25	.83	.55	.54	.20	1.24	0	.49	.43	.61
Apr.	.24	2.13	0	1.59	.34	1.64	0	1.45	0	1.39
May	3.43	2.85	2.37	2.10	3.28	2.15	2.20	1.95	1.75	2.10
June	1.23	2.53	0	2.14	1.23	2.31	2.09	2.20	.40	2.43
July	2.10	1.57	1.55	1.70	1.55	.33	.27	1.33	.73	1.23
Aug.	0	2.20	0	1.50	0	.85	.35	1.33	0	1.33
Sep.	.75	2.59	1.30	2.51	1.97	1.85	.33	2.03	1.31	3.24
Oct.	2.51	2.38	1.84	2.23	9.21	2.65	5.69	2.35	3.75	2.34
Nov.	1.28	1.24	1.95	1.90	1.13	1.13	.30	1.21	.83	1.11
Dec.	3.75	.30	3.74	.54	3.22	.73	1.30	.58	2.55	.72
Yearly	15.45	21.37	23.35	17.55	24.71	18.31	14.00	15.75	14.21	18.53

RAINFALL ON THE RIO GRANDE WATERSHED IN THE UNITED STATES

In Inches

Month	Wipff Ranch		Lateral No. 2 Spill		Normandy		Lateral No. 12 Headgate		Lateral 15 Spill	
	1984	Average	1984	Average	1984	Average	1984	Average	1984	Average
Jan.	2.20	0.58	1.78	0.53	2.05	0.77	1.65	0.58	1.90	0.62
Feb.	0	.80	0	.74	0	.80	0	.62	0	.66
Mar.	.50	.60	.55	.65	.54	.71	.50	.56	1.05	.54
Apr.	0	1.71	0	1.83	0	1.95	0	1.78	0	1.75
May	2.50	2.35	2.15	2.62	2.52	2.82	1.50	2.58	3.10	2.43
June	.10	2.23	0	2.26	.47	2.19	.15	2.08	0	2.05
July	.20	1.45	.70	1.69	.25	1.85	.10	1.49	T	1.74
Aug.	0	1.86	.10	1.92	T	1.97	.05	1.69	T	1.61
Sep.	1.70	2.75	1.40	2.96	1.56	2.97	1.35	2.74	1.30	2.53
Oct.	6.10	2.16	5.45	2.11	5.51	2.35	6.90	2.48	4.90	2.40
Nov.	.90	1.22	.90	1.12	1.13	1.12	.90	.95	.90	.89
Dec.	2.30	.64	2.19	.57	2.21	.70	2.11	.60	2.35	.59
Yearly	16.50	18.45	15.13	19.10	16.24	20.20	15.21	18.15	15.50	17.81

Month	Maverick Power Plant		Cooper Ranch		Coal Mine		Elm Creek Station		Chittim Ranch	
	1984	Average	1984	Average	1984	Average	1984	Average	1984	Average
Jan.	2.10	0.71	2.30	0.57	1.60	0.59	1.70	0.55	1.50	0.57
Feb.	0	.79	T	.68	.30	.72	0	.63	0	.74
Mar.	.53	.74	.20	.64	.40	.69	.30	.52	0	.53
Apr.	0	1.91	0	1.76	0	1.72	0	1.82	0	2.04
May	2.33	2.65	2.20	2.48	.75	2.62	3.05	2.99	1.50	3.28
June	.39	2.40	.30	2.71	1.15	2.01	0	2.23	.70	2.13
July	.06	1.53	.50	1.82	.20	1.95	1.10	1.71	2.00	2.03
Aug.	.18	1.84	0	2.03	0	1.71	0	1.93	.30	2.11
Sep.	1.66	2.81	1.55	3.33	1.60	3.14	1.35	2.79	1.35	2.76
Oct.	4.41	2.30	4.60	2.35	3.35	2.36	4.80	2.37	4.65	2.43
Nov.	.60	.87	.70	1.00	.25	.84	.55	.81	.70	.80
Dec.	2.42	.64	2.50	.64	2.85	.54	2.62	.62	2.60	.64
Yearly	14.68	19.33	14.55	20.01	12.95	18.89	15.47	18.97	15.30	20.06

Month	Eagle Pass		Canon Diablo		Rosita Creek Siphon		Weyrich Farm		Trees Farm	
	1984	Average	1984	Average	1984	Average	1984	Average	1984	Average
Jan.	1.75	0.70	1.30	0.58	2.00	0.52	1.10	0.49	1.65	0.55
Feb.	.19	.83	0	.65	0	.72	0	.70	0	.73
Mar.	.53	.75	.40	.61	0	.52	0	.39	.46	.43
Apr.	0	1.82	0	1.95	0	1.86	0	1.97	0	1.92
May	3.49	3.99	3.25	3.76	1.80	2.66	.10	2.85	2.15	2.86
June	1.93	2.87	1.30	2.72	.90	2.20	.70	1.83	.50	1.92
July	.83	1.84	1.90	1.42	0	1.63	0	1.05	.12	1.61
Aug.	.26	2.71	0	2.26	.28	1.76	.50	1.83	0	1.80
Sep.	1.75	3.04	1.30	3.08	.90	2.64	T	2.43	.80	2.57
Oct.	4.77	2.29	4.95	2.06	3.00	2.05	2.65	1.62	3.45	2.72
Nov.	.77	1.02	1.50	.97	.60	.85	.40	.76	.64	.83
Dec.	2.61	.31	2.25	.65	2.00	.68	2.00	.63	2.42	.67
Yearly	18.88	22.57	17.75	20.62	11.48	18.10	7.45	16.55	12.19	18.66

Month	Rosita Creek Station		Farius Ranch		Indio Ranch		El Indio		Van Dalsen Farm	
	1984	Average	1984	Average	1984	Average	1984	Average	1984	Average
Jan.	1.70	0.50	1.25	0.64	1.41	0.64	1.53	0.74	0.85	0.57
Feb.	0	.65	0	.92	0	.77	0	.90	0	.83
Mar.	.50	.51	.30	.53	.35	.53	.30	.56	.25	.46
Apr.	0	1.94	0	2.04	0	2.03	0	1.85	0	2.12
May	2.53	2.31	.50	3.04	3.32	3.00	1.30	3.32	1.85	3.21
June	1.90	2.24	1.15	2.22	0	2.35	.17	2.15	0	1.90
July	.30	1.32	.15	1.96	.05	1.76	T	1.24	0	1.44
Aug.	0	1.67	0	2.00	.20	1.70	.05	1.97	T	1.72
Sep.	.20	2.67	1.25	3.46	1.04	3.24	1.14	2.98	2.03	3.11
Oct.	4.40	2.51	4.15	2.72	4.95	2.51	4.59	2.27	3.85	2.38
Nov.	.92	.66	.56	.86	.50	.84	.47	.77	.35	.73
Dec.	2.83	.66	1.35	.77	2.25	.73	1.90	.67	1.30	.70
Yearly	14.56	19.34	10.75	21.16	14.08	20.20	11.95	19.42	11.13	19.22

T Trace

**RAINFALL ON THE RIO GRANDE WATERSHED
IN THE UNITED STATES**
In Inches

Month	Wuensche Farm		Keisling Farm		Cuervo Creek Station		Apache Ranch		Laredo Water Plant	
	1984	Average	1984	Average	1984	Average	1984	Average	1984	Average
Jan.	0.85	0.66	1.17	0.59	1.05	0.50	0.50	0.55	1.41	0.74
Feb.	0	.89	0	.84	0	.67	0	.81	T	.82
Mar.	.30	.57	.21	.62	.20	.42	0	.36	0	.58
Apr.	0	1.83	0	1.98	0	1.78	0	1.41	0	1.19
May	1.70	3.00	.95	2.84	.20	2.35	T	2.44	2.10	2.44
June	.05	2.34	.03	2.54	1.05	2.26	0	1.78	0	2.14
July	.20	1.26	.50	1.34	.50	1.20	.50	2.00	0	1.13
Aug.	T	1.75	0	1.74	.50	1.55	0	1.83	0	1.89
Sep.	2.15	2.92	2.33	2.76	2.50	2.86	0	3.34	.18	2.93
Oct.	4.50	2.19	4.65	2.34	3.50	2.20	1.00	2.22	.40	1.80
Nov.	.30	.75	.30	.73	.50	.73	.10	.64	0	.87
Dec.	1.70	.65	1.73	.84	1.55	.60	.80	.70	1.57	.86
Yearly	11.75	18.96	12.42	19.16	11.55	17.22	2.90	18.08	5.66	17.39

Month	Fort McIntosh (Laredo)		Corralitos Ranch		Huisache Ranch		Zapata Water Plant		Arroyo Tigre Chiquito	
	1984	Average	1984	Average	1984	Average	1984	Average	1984	Average
Jan.	1.55	0.74	2.52	0.68	2.92	0.79	4.30	0.86	2.87	0.76
Feb.	.20	.88	.20	.72	.20	.88	0	.82	.90	.90
Mar.	.20	.70	0	.49	0	.56	0	.51	0	.29
Apr.	0	1.33	0	1.08	0	1.26	0	1.40	0	1.06
May	3.93	2.78	4.30	2.16	3.30	2.20	3.33	2.68	1.81	2.09
June	.10	2.27	0	2.11	0	2.36	.30	2.24	0	1.89
July	1.01	1.44	.70	1.25	1.00	1.40	2.17	1.55	.65	1.17
Aug.	1.06	1.95	0	1.76	0	1.52	0	1.90	.18	2.00
Sep.	1.89	2.89	0	3.11	0	3.91	2.92	4.36	.35	4.14
Oct.	2.21	1.81	3.90	1.76	4.50	2.04	.11	1.73	2.20	1.80
Nov.	.59	1.13	0	.83	0	.82	.85	.91	0	.95
Dec.	1.84	.87	1.70	.63	1.60	.76	2.29	.92	.20	.58
Yearly	14.63	18.79	13.32	16.58	13.52	18.50	16.27	19.88	9.16	17.63

Month	Falcon Dam		Roma (Int'l. Bridge)		Garciasville		Los Ebanos		La Joya	
	1984	Average	1984	Average	1984	Average	1984	Average	1984	Average
Jan.	3.52	0.90	1.49	0.86	4.43	1.01	3.20	1.12	3.00	1.04
Feb.	.91	.99	0	1.05	.15	.95	1.24	.97	1.20	1.12
Mar.	.05	.61	0	.50	0	.49	0	.42	0	.45
Apr.	.04	1.12	0	1.33	.04	1.03	0	1.39	0	.96
May	2.90	2.50	.96	1.76	5.52	2.51	.17	2.21	.20	2.26
June	.22	2.55	1.12	2.22	2.78	2.45	2.95	2.25	1.67	2.73
July	2.06	1.27	0	1.30	.53	1.30	.18	1.22	2.35	1.22
Aug.	.73	2.52	0	1.89	1.05	1.95	.39	1.98	0	1.53
Sep.	2.59	4.35	2.99	4.41	3.73	3.53	2.52	3.17	2.85	3.08
Oct.	1.40	2.09	0	1.98	.26	1.95	1.75	2.00	4.70	1.88
Nov.	.59	1.10	1.07	.74	1.12	1.00	2.15	.78	1.20	.81
Dec.	.39	.73	0	.46	.06	.74	.15	.76	.05	.85
Yearly	15.40	20.74	7.62	18.60	19.67	18.96	14.70	18.27	17.22	17.93

Month	HCWCID #6 Goodwin Pump No. 43		HCWCID #6 Goodwin Pump No. 3		Penitas (Edinburg Pumping Plant)		New Mission Pumping Plant		Edinburg Filtration Plant	
	1984	Average	1984	Average	1984	Average	1984	Average	1984	Average
Jan.	3.70	1.30	3.70	1.34	3.51	1.35	4.60	1.21	5.11	1.57
Feb.	.10	.96	.10	1.27	.27	1.01	.31	1.06	.37	1.20
Mar.	.40	.51	.40	.66	.44	.50	.35	1.00	.04	.70
Apr.	0	1.15	0	1.41	.05	1.27	0	1.27	T	1.64
May	2.15	2.10	2.25	2.39	1.77	2.35	2.40	2.86	3.01	2.34
June	.80	2.45	.80	2.50	.77	2.99	.75	2.61	.82	2.58
July	2.90	1.29	2.50	1.70	.86	1.53	2.03	1.59	1.04	1.41
Aug.	.70	1.65	.50	1.96	2.14	2.44	2.67	2.37	2.31	2.54
Sep.	9.40	3.41	4.30	3.25	7.69	3.60	7.31	3.03	7.62	3.78
Oct.	2.60	2.65	1.55	2.87	1.37	2.57	1.70	2.56	1.78	2.60
Nov.	.20	.92	.20	.93	0	.91	.35	.73	.21	1.06
Dec.	1.30	.33	.30	1.00	.83	.94	.43	.95	1.56	1.02
Yearly	24.25	19.23	16.60	21.27	19.70	21.56	22.90	21.14	23.87	22.44

T Trace

RAINFALL ON THE RIO GRANDE WATERSHED IN THE UNITED STATES

In Inches

Month	La Feria Pumping Plant		La Feria Materials Yard		CCWCID #19 (Adams Gardens)		San Bonito Pump		CCWCID #11 (Bayview Dist. Off.)	
	1984	Average	1984	Average	1984	Average	1984	Average	1984	Average
Jan.	7.30	1.74	5.55	1.70	3.22	1.32	5.16	1.44	4.37	1.67
Feb.	.85	1.79	.50	2.04	.85	1.64	.28	1.06	.39	1.57
Mar.	0	.79	0	.79	0	.77	0	.80	0	.68
Apr.	0	2.07	0	1.57	0	1.50	0	1.42	0	1.84
May	.50	3.00	3.25	2.63	1.33	2.60	2.24	2.67	3.65	2.72
June	0	3.31	0	3.61	.29	2.50	.50	2.43	.56	2.29
July	2.70	2.50	3.10	2.57	.81	1.88	.68	1.79	0	1.99
Aug.	.85	3.71	.20	3.35	.61	3.09	1.68	2.45	2.57	2.83
Sep.	11.70	5.36	13.80	5.10	9.55	4.25	3.91	4.47	19.95	8.02
Oct.	11.70	4.26	2.50	3.38	2.65	2.93	2.28	2.73	0	2.23
Nov.	0	1.83	0	1.47	.07	1.46	.40	1.15	0	1.35
Dec.	1.40	1.56	1.30	1.55	1.77	1.17	1.81	1.34	4.16	1.50
Yearly	37.00	32.92	30.80	29.76	21.15	25.21	23.94	23.75	36.76	26.69

RAINFALL ON THE RIO GRANDE WATERSHED IN MEXICO In Inches

Tabulated below, in approximate downstream order, are monthly records of Mexican rainfall stations with averages for their periods of record. For location, elevation, period of record, type of gage in use, watershed subdivision in which the station is located, and the observer, see alphabetical listing of these stations shown on pages 134 through 137 in this bulletin. These rainfall records have not been published elsewhere. Records of daily rainfall amounts, where available, are on file in the offices of the Mexican Section of the Commission.

Detailed listings of the months and years for which records are available through 1970 may be found under "Index to Precipitation Records" in Water Bulletins 10, 14, 22, 26, and Supplement 40A.

Month	Cd. Juarez, * Chihuahua		El Sauzal D. B., Chihuahua		Garita Km. 28, Chihuahua		Samalayuca, Chihuahua		San Agustin, Chihuahua	
	1984	Average	1984	Average	1984	Average	1984	Average	1984	Average
Jan.	0.35	0.43	1.02	0.55	0.47	0.63	0.79	0.49	0.63	0.41
Feb.	0	.44	0	.34		.45	0	.47	0	.31
Mar.	.24	.35	.47	.16	.43	.27	.04	.37	.12	.22
Apr.	T	.30	0	.14		.21	0	.17	0	.13
May	.47	.36	0	.29	.87	.35	.12	.26	.08	.30
June	2.76	.63		.38	.35	.67	2.64	.76	1.97	.65
July	1.42	1.54	.43	1.08	.83	1.68	.55	1.92	.59	1.41
Aug.	5.04	1.57		1.20	2.99	1.75	6.39	1.95	3.54	1.32
Sep.	.47	1.44	.08	1.56	.87	1.85	1.26	1.98	.63	1.47
Oct.	3.39	1.06		1.12	.39	.88	3.94	.90	4.33	.98
Nov.	.67	.48	.47	.21	.28	.52	.67	.46	.43	.31
Dec.	1.50	.56	.87	.50	.87	.58	1.42	.42	.67	.49
Yearly	16.31	9.16		7.53		9.86	17.81	10.15	12.99	8.00

Month	Campo Agricola Experi., Chihuahua		Porvenir, Chihuahua		Vado de Cedillos, Chihuahua		Los Barriles, Chihuahua		Escuela Escobar, d Chihuahua	
	1984	Average	1984	Average	1984	Average	1984	Average	1984	Average
Jan.	1.38	0.37	1.46	0.40	1.38	0.43	0.08	0.30	0.31	0.74
Feb.	0	.24	0	.35	0	.32	0	.20		.55
Mar.	0	.22	0	.24	.08	.23	.43	.19		.24
Apr.	0	.19	0	.22	0	.27	0	.11		.93
May	.35	.34	.79	.47	.43	.41	.16	.32	.39	.38
June	1.55	.63	1.55	.80	1.14	1.00	1.02	.86	3.98	1.28
July	.79	1.71	.47	1.54	2.17	1.58	.28	1.56	1.02	1.14
Aug.	1.31	1.31	1.81	1.80	2.32	1.83	1.61	1.80	3.82	2.00
Sep.	.93	1.62	1.06	1.89	.87	1.94	.08	1.36	1.02	1.84
Oct.		.91	3.07	1.00	2.72	1.04	1.81	.94	4.29	1.32
Nov.	.67	.39	.83	.45	1.02	.45	.63	.42	.04	.43
Dec.	1.95	.46	1.10	.50	1.22	.57	.59	.29	1.54	.84
Yearly		8.39	12.24	9.66	13.35	10.08	6.69	8.35		12.29

Month	Banderas, Chihuahua		El Cuarenta, Chihuahua		Carichic, Chihuahua		San Juanito, Chihuahua		El Vergel, Chihuahua	
	1984	Average	1984	Average	1984	Average	1984	Average	1984	Average
Jan.	0	0.10	1.34	0.49	1.18	0.59	1.18	1.86	0.47	1.38
Feb.	0	.21	0	.33	T	.43	.16	1.03	.12	.72
Mar.	0	.14	.08	.23	0	.29	0	.69	T	.62
Apr.	0	.08	0	.19	T	.19	.16	.99	0	.48
May	0	.18	.47	.33	.59	.38	1.81	.71	2.44	.84
June	.08	.64	2.32	.80	5.87	1.78	7.95	2.17	11.93	3.28
July	0	.94	2.17	2.03	4.29	5.78	4.29	9.04	3.85	5.67
Aug.	2.36	1.57	4.96	2.95	6.22	5.03	6.77	7.03	11.46	7.18
Sep.	.63	1.65	1.02	1.91	3.58	3.88	2.28	4.34	4.13	4.74
Oct.	1.77	.85	2.13	1.65	1.65	1.16	3.82	2.61	.87	1.95
Nov.	.03	.24	.79	.51	.59	.61	.51	1.39	.08	.59
Dec.	.35	.20	.79	.51	2.30	.31	7.32	2.22	2.44	1.30
Yearly	5.27	6.80	16.07	11.31	26.77	20.93	35.25	34.08	37.80	29.86

T Trace

* Formerly titled "Juarez, Chihuahua"

d Formerly titled "Escuela de Agricultura Escobar, Chihuahua"

**RAINFALL ON THE RIO GRANDE WATERSHED
IN MEXICO
In Inches**

Month	Balleza, Chihuahua		El Sitio, Chihuahua		La Boquilla, Chihuahua		San Antonio, Durango		Estacion Rosario, Durango	
	1984	Average	1984	Average	1984	Average	1984	Average	1984	Average
Jan.	0.43	0.38	1.06	0.31	1.42	0.30	3.19	0.42	1.93	0.39
Feb.	T	.33	0	.29	.04	.18	.83	.17	.24	.24
Mar.	0	.16	0	.18	0	.15	0	.10	0	.15
Apr.	0	.20	0	.19	0	.21	0	.26	0	.27
May	.63	.24	1.14	.42	1.22	.55	1.18	.58	.47	.69
June	7.44	1.64	4.17	1.62	4.21	1.43	7.36	2.04	3.78	2.29
July	4.88	4.61	4.92	4.21	2.72	2.90	5.87	4.52	3.66	4.22
Aug.	6.30	4.94	6.57	4.93	3.03	2.96	2.64	4.20	2.72	4.93
Sep.	1.65	3.42	1.02	3.49	1.81	2.99	1.97	4.28	1.89	4.66
Oct.	.87	.93	.47	.91	.79	.89	.59	1.18	.39	1.18
Nov.	.35	.46	.47	.37	.12	.33	0	.27	0	.36
Dec.	1.57	.47	1.46	.36	1.02	.35	2.13	.31	1.02	.43
Yearly	24.12	17.78	21.28	17.28	16.38	13.24	25.76	18.33	16.10	19.81

Month	Villa Coronado, Chihuahua		Ojo Caliente, Chihuahua		Valle Allende, Chihuahua		Escalon, Chihuahua		Jimenez, Chihuahua	
	1984	Average	1984	Average	1984	Average	1984	Average	1984	Average
Jan.	4.96	0.66	1.89	0.27	2.95	0.36	1.81	0.41	2.32	0.30
Feb.	.31	.27	0	.22	.08	.17	.16	.18	.16	.15
Mar.	0	.19	0	.15	0	.09	0	.10	0	.12
Apr.	0	.34	0	.18	0	.17	0	.36	0	.13
May	1.26	.71	.87	.51	1.22	.75	1.34	.71	.79	.51
June	6.61	3.06	3.78	1.67	5.63	1.90	6.46	1.84	6.34	1.37
July	7.56	3.91	3.82	3.28	4.17	3.82	4.09	2.43	5.71	3.29
Aug.	4.17	5.20	2.20	2.87	3.86	4.83	1.06	2.93	1.73	2.59
Sep.	3.23	4.08	1.93	2.80	1.89	3.65	1.22	2.66	.83	2.31
Oct.	2.24	1.28	.43	1.11	.43	.86	.35	1.18	.91	1.17
Nov.	.20	.45	.16	.24	.16	.29	.08	.31	.16	.25
Dec.	1.38	.54	1.42	.28	1.77	.37	.91	.38	.79	.25
Yearly	31.92	20.69	16.50	13.58	22.16	17.26	17.48	13.49	19.74	12.44

Month	Camargo, Chihuahua		Nonoava, Chihuahua		El Maguey, Chihuahua		Las Virgenes, Chihuahua		Km. 135, Chihuahua	
	1984	Average	1984	Average	1984	Average	1984	Average	1984	Average
Jan.	1.65	0.45	1.54	0.43	1.34	0.35	0.83	0.29	1.26	0.25
Feb.	T	.25	0	.36	0	.29	.04	.12	.20	.20
Mar.	T	.13	0	.33	0	.19	0	.09	0	.11
Apr.	0	.19	T	.18	0	.23	0	.24	0	.34
May	.39	.58	.28	.36	1.39	.43	.28	.32	.24	.46
June	4.41	1.65	13.11	2.32	6.46	1.64	2.60	1.20		1.11
July	4.09	3.19	2.32	4.76	5.00	3.62	2.17	2.47		2.27
Aug.	2.91	2.96	4.65	3.88	5.04	4.23	2.44	2.69	3.19	2.75
Sep.	1.26	3.05		2.84	.71	3.41	1.85	2.48	1.06	3.08
Oct.	.83	1.03	.98	1.07	.51	.93	.43	.87	.39	.97
Nov.	.12	.38	.71	.50	.39	.26	.24	.25	.24	.35
Dec.	1.30	.36	1.97	.51	1.18	.32	1.57	.37	1.34	.38
Yearly	16.96	14.22		17.54	22.52	15.90	12.45	11.39		12.27

Month	Delicias, Chihuahua		Lazaro Cardenas, Chihuahua		Meoqui, Chihuahua		Las Burras, Chihuahua		Cd. Guerrero, Chihuahua	
	1984	Average	1984	Average	1984	Average	1984	Average	1984	Average
Jan.	1.14	0.35	1.22	0.25	1.38	0.30	1.10	0.30	0.24	0.64
Feb.	.04	.15	T	.23	.04	.17	.04	.18	.35	.41
Mar.	0	.13	0	.11	0	.13	0	.12	0	.26
Apr.	0	.29	0	.20	T	.41	0	.22	T	.19
May	.63	.33	.20	.44	.71	.48	.43	.43	.71	.32
June	4.49	1.19	5.24	1.36	5.04	1.35	6.54	1.26	3.70	1.53
July	3.15	2.43	1.69	2.73	3.43	2.48	2.36	2.76	4.88	4.89
Aug.	2.72	2.54	1.65	2.64	3.35	2.79	2.91	2.67	7.93	5.15
Sep.	2.36	2.33	.87	2.75	1.85	2.56	.79	2.33	1.14	3.15
Oct.	.63	.84	.47	.85	.75	1.01	.35	.79	2.13	1.21
Nov.	.39	.27	.28	.37	.39	.28	.31	.25	.04	.50
Dec.	1.22	.38	.91	.22	1.42	.39	1.30	.36	1.89	.74
Yearly	16.77	11.23	12.53	12.15	18.36	12.35	16.13	11.72	22.91	18.99

T Trace

RAINFALL ON THE RIO GRANDE WATERSHED
IN MEXICO
In Inches

Month	Bachiniva, Chihuahua		La Trásquilla, Chihuahua		Cuahtemoc, Chihuahua		Colonia Anahuac, Chihuahua		Presa Chihuahua, Chihuahua	
	1984	Average	1984	Average	1984	Average	1984	Average	1984	Average
Jan.	0.24	0.51	0.55	0.36	0.08	0.35	0.35	0.39	0.83	0.32
Feb.	0	.19	0	.28		.15	T	.26	.04	.18
Mar.	0	.31	0	.14	0	.16	0	.20	0	.15
Apr.	0	.14	0	.20	T	.19	0	.27	0	.21
May	.51	.27	1.10	.36	.71	.36	.59	.54	1.18	.79
June	4.84	1.55	2.83	1.24	6.38	1.53	6.38	1.63	4.33	2.15
July	1.89	5.20	1.18	3.43	2.56	4.62	4.57	4.53	2.24	3.97
Aug.	6.85	4.72	4.41	2.79	6.61	4.29	8.27	5.05	4.13	4.34
Sep.	3.23	2.79	2.36	3.14	2.20	2.90	1.02	3.61	2.13	3.47
Oct.	1.73	1.16	3.07	.99	1.06	1.17	1.10	1.14	.98	1.00
Nov.	0	.34	.24	.31	T	.30	.08	.34	.28	.35
Dec.	1.42	.49	1.34	.38	1.18	.45	.87	.33	1.26	.39
Yearly	20.71	17.67	17.08	13.62		16.47	23.23	18.29	17.40	17.32

Month	Chihuahua, Chihuahua		Majalca, Chihuahua		Posta Zootecnica, Chihuahua		Villa Aldama, Chihuahua		Presa Luis L. Leon, Chihuahua	
	1984	Average	1984	Average	1984	Average	1984	Average	1984	Average
Jan.	2.05	0.30	0.63	0.50	1.57	0.33	0.63	0.28	0.67	0.23
Feb.	.08	.20	.43	.33	.08	.22	0	.19	0	.15
Mar.	T	.19	0	.34	0	.16	T	.24	0	.13
Apr.	0	.19	0	.34	0	.30	0	.28	0	.25
May	1.30	.48	2.13	.83	1.22	.68	.35	.45	1.89	.54
June	2.72	1.47	6.38	2.51	2.60	1.46	2.09	1.61	3.50	1.28
July	2.80	3.52	6.30	5.93	1.10	3.32	1.89	2.68	1.06	2.07
Aug.	4.41	3.40	5.51	6.33	3.31	3.90	4.06	2.96	4.33	3.03
Sep.	2.05	2.87	2.91	4.71	1.26	3.14	2.13	3.31	.63	2.48
Oct.	1.34	.89	1.14	1.15	.83	1.16	.31	.83	.39	.70
Nov.	.47	.42	.63	.46	.47	.35	.71	.34	.67	.35
Dec.	1.57	.41	1.14	.43	1.14	.33	1.02	.38	1.42	.35
Yearly	18.79	14.34	27.20	23.86	13.98	15.35	13.19	13.55	14.56	11.56

Month	Maclovio Herrera, Chihuahua *		Parrita, Chihuahua		Majjoma, Chihuahua		Coyame, Chihuahua		Gallego, Chihuahua	
	1984	Average	1984	Average	1984	Average	1984	Average	1984	Average
Jan.	0.47	0.34	0.28	0.26	0.39	0.42	0.71	0.26	0.43	0.37
Feb.	0	.20	0	.22	0	.32	0	.30	.35	.37
Mar.	0	.12	0	.09	.04	.20	0	.15	.04	.20
Apr.	0	.34	0	.42	0	.34	0	.34	0	.24
May	.55	.57	2.87	.53	1.69	.84	.59	.56	.59	.37
June	4.53	1.23	1.34	1.59	5.08	1.67	4.72	1.61	3.70	1.11
July	2.05	2.60	4.41	2.48	2.13	2.83	.47	2.25	2.01	3.11
Aug.	2.05	2.73	5.55	3.36	3.03	3.27	4.17	2.37	3.90	3.22
Sep.	.79	3.11	2.56	3.27	1.02	2.74	1.73	2.82	1.89	2.92
Oct.	.55	.79	1.30	1.02	.39	1.08	1.42	.95	2.52	1.28
Nov.	.83	.38	.31	.33	1.57	.45	.98	.47	.63	.35
Dec.	1.34	.58		.26	1.06	.40	1.50	.26	.63	.29
Yearly	13.16	12.97		13.83	16.40	14.56	16.29	12.34	16.69	13.83

Month	Ojinaga (IB&WC), Chihuahua		Ojinaga (M.S. of Mexico), Chihuahua		Manuel Benavides, Chihuahua		Sierra Mojada, Coahuila		Ejido Eutimias, Coahuila	
	1984	Average	1984	Average	1984	Average	1984	Average	1984	Average
Jan.	0.63	0.34	0.63	0.33		0.21	0.94	0.58	0.28	0.29
Feb.	0	.22	0	.22	0	.23	0	.29	0	.17
Mar.	0	.17	T	.20	0	.23	0	.26	0	.12
Apr.	0	.34	0	.30	0	.35	0	.31	0	.72
May	.91	.52	.24	.60	1.02	1.13	.98	.99	1.77	1.01
June	2.99	1.33	3.03	1.17	6.38	1.62	3.07	2.23	2.01	1.31
July		1.64	.31	1.56		2.07		2.85	.59	1.63
Aug.	1.02	1.71	1.73	1.65	9.80	2.65	.91	2.84	.63	1.05
Sep.	2.44	1.72	2.24	1.62	.55	2.73	.31	2.95	.31	1.10
Oct.	1.77	1.04	1.34	1.03	1.61	1.09	2.76	1.35	1.77	1.10
Nov.	.98	.46	.71	.39	1.73	.34	.43	.55	.51	.37
Dec.	1.89	.38	1.30	.41	.94	.33	1.18	.68	.67	.55
Yearly		9.87	11.53	9.48		12.98		15.88	8.54	9.43

T Trace

* Formerly titled "Maclovio Herrera (Falconir), Chihuahua"

**RAINFALL ON THE RIO GRANDE WATERSHED
IN MEXICO
In Inches**

Month	Ejido La Rosita, Coahuila		San Fernando, Coahuila		Hda. San Miguel, Coahuila		La Chuparrosa, Coahuila *		Presa Centenario, Coahuila	
	1984	Average	1984	Average	1984	Average	1984	Average	1984	Average
Jan.		0.38	0.16	0.34	0.91	0.38	1.54	0.30	1.22	0.51
Feb.		.09	0	.64	0	.70	.12	.54	.20	.74
Mar.	0	.12	0	.37	0	.56	0	.41	.08	.57
Apr.	0	.54	0	1.12	0	1.72	0	1.27	0	1.48
May	.35	.53	0	1.40	2.95	2.47	1.32	1.17	2.80	1.98
June		.91	T	1.03	0	2.00	1.05	1.41	.35	2.12
July	.43	1.06	.39	1.12	.59	1.57	.73	1.55	.51	1.36
Aug.	.24	.84	.79	1.95	0	1.48	3.40	2.38	0	2.36
Sep.	1.61	.69	2.01	2.64	.55	2.72	3.05	2.14	.79	3.32
Oct.	.63	.71	3.39	1.67	2.24	1.56	1.71	1.69	2.83	2.56
Nov.	.08	.26	2.20	.79	.98	.70	2.05	.64	.87	1.10
Dec.	.87	.95	5.04	.60	1.50	.43	1.31	.34	3.50	.64
Yearly		7.08	13.98	13.67	9.72	16.29	16.28	13.84	13.15	18.74

Month	Amistad Res. near Tlaloc, Coahuila		La Amistad, Coahuila		Represa Amistad, Coahuila		Cd. Acuna, Coahuila		Presa Cabeceras, Coahuila	
	1984	Average	1984	Average	1984	Average	1984	Average	1984	Average
Jan.	0.56	0.45	1.34	0.65	1.14	0.37	1.30	0.55	1.77	0.55
Feb.	.13	.76	T	.87	.24	.69	.31	.90	.12	.77
Mar.	0	.77	0	.64	.04	.53	.08	.70	0	.58
Apr.	.30	1.12	.16	1.81	.16	1.09	.39	1.71	0	1.65
May	1.90	1.68	1.57	1.71	1.38	1.39	2.83	2.27	2.44	2.41
June	1.42	2.26	1.38	2.51	1.02	1.53	.16	2.11	.39	2.40
July	2.55	2.28	2.56	.98	1.77	1.96	.75	1.59	.63	2.39
Aug.	T	2.24	T	.51	0	1.73	T	1.74	0	2.95
Sep.	1.30	2.64	2.05	1.54	.87	2.18	2.64	2.89	1.39	4.11
Oct.	1.16	2.10	1.34	2.34	.71	2.19	1.26	2.61	1.89	2.56
Nov.	1.60	.87	1.54	1.53	.47	.85	1.18	.80	1.46	1.21
Dec.	2.80	.59	2.28	.65	1.69	.41	2.72	.61	1.06	.50
Yearly	14.32	17.76	14.22	15.74	9.49	14.92	13.62	18.48	11.65	22.08

Month	Presa San Miguel, Coahuila		Palestina, Coahuila		Ejido San Miguel, Coahuila		Emiliano Zapata, Coahuila		Jimenez, Coahuila	
	1984	Average	1984	Average	1984	Average	1984	Average	1984	Average
Jan.	1.54	0.52	1.57	0.84		0.69	1.97	1.30	1.73	0.70
Feb.	.12	.79	.16	.96	.04	.17	.12	.75	T	.87
Mar.	.04	.62	0	.70	0	.14	.24	.69	.31	.69
Apr.	0	1.37	.24	1.80	.04	.81	0	1.86	T	1.69
May	1.50	2.20	3.66	2.39	.28	1.03	1.73	3.03	1.89	2.43
June	.04	2.53	.31	2.31	5.08	1.92	0	2.75	.12	2.47
July	.91	1.59	.39	1.87	3.86	1.30	.98	2.12	.83	1.57
Aug.	0	2.64	0	2.30	.75	2.08	0	2.00	.08	1.68
Sep.	1.10	3.44	.79	3.10		1.51	1.18	1.74	.71	2.81
Oct.	2.56	2.35	1.57	2.24		.65	1.42	1.66	6.57	2.49
Nov.	1.46	1.23	1.26	.90	.55	.51	.98	2.02	.79	1.14
Dec.	3.46	.60	.59	.71		.27	3.82	.96	1.81	.67
Yearly	12.73	19.88	10.54	20.12		11.08	12.44	20.38	14.84	19.21

Month	El Remolino, Coahuila		Piedras Negras, Coahuila		Zaragoza, Coahuila		Allende, Coahuila		Guerrero, Coahuila	
	1984	Average	1984	Average	1984	Average	1984	Average	1984	Average
Jan.	0	0.47	1.10	0.69	1.34	0.68	0.79	0.56	T	0.52
Feb.	0	.65	0	.91	0	.87	0	.83	0	.69
Mar.	1.38	.44	.39	.63	.35	.76	T	.40	0	.50
Apr.	1.30	1.60	0	2.00	T	2.52	0	1.42	0	1.90
May	0	1.91	2.99	3.51	2.36	3.98	4.37	2.66	1.85	3.02
June	0	3.16	1.59	2.50	.39	2.03	0	2.11	2.52	2.67
July	0	2.19	0	1.98	.51	1.02	.63	1.74	0	1.50
Aug.	0	1.76	0	2.41	0	1.62	3.86	2.63	0	2.05
Sep.		3.74	1.61	3.09	.93	1.22	1.73	3.53	2.05	3.41
Oct.		2.46	5.12	2.72	2.76	1.24	1.81	1.98	2.56	2.53
Nov.		.63	.55	.91	.67	1.44	.71	.85	.39	.70
Dec.		.41	3.11	.71	2.09	.30	1.89	.70	1.38	.63
Yearly		19.42	16.56	22.06	11.45	18.18	15.79	19.46	10.75	20.12

T Trace

* Formerly titled "Rancho La Chuparrosa, Coahuila"

**RAINFALL ON THE RIO GRANDE WATERSHED
IN MEXICO
In Inches**

Month	Rancho San Diego, Coahuila		Villa Hidalgo, Coahuila		Colombia (IB&WC), Nuevo Leon		Colombia (SARH), Nuevo Leon		Rancho Vidrios, Tamaulipas	
	1984	Average	1984	Average	1984	Average	1984	Average	1984	Average
Jan.	0.39	0.21	1.77	0.73	0.59	0.46	1.54	1.10	0.79	0.73
Feb.	0	.47	.08	.89	0	.73	0	.50	0	.86
Mar.	0	.29	.28	.69	.39	.82	0	.54	T	.48
Apr.	0	1.03	0	1.68	0	1.76	0	1.62	0	1.52
May	1.77	2.33	1.61	2.82	2.68	3.30	3.19	2.72	3.15	3.22
June	0	1.56	.51	2.15	.75	2.10	.83	1.44	.20	1.98
July	0	1.15	.28	1.14	.59	1.41	0	.36	.55	1.42
Aug.	0	1.08	0	2.27	0	2.83	0	.23	T	2.27
Sep.	.79	2.56	2.13	3.49	1.57	3.61	.51	1.35	2.36	3.28
Oct.	.20	1.10	1.61	2.06	1.97	2.00	1.38	2.94	2.28	2.54
Nov.	0	.57	.08	.94	T	1.01	0	.79	0	1.10
Dec.	.39	.42	1.34	.76	1.22	.82	1.10	.94	2.32	.92
Yearly	3.54	12.82	9.69	19.62	9.75	20.85	8.55	14.53	11.65	20.32

Month	Nv. Laredo (M. S. of Mexico), Tamps.		Nv. Laredo (IB&WC), Tamaulipas		Jarita, Nuevo Leon		Nuevo Laredo (Sur), Tamaulipas		Nuevo Laredo Km. 26 SSW, Tamaulipas	
	1984	Average	1984	Average	1984	Average	1984	Average	1984	Average
Jan.	1.89	0.79	1.77	0.69	1.69	0.54	1.89	0.73	2.36	0.76
Feb.	T	.92	.16	.98	0	.85	T	.91	0	.97
Mar.	.24	.63	.20	.51	.31	.54	.35	.50	T	.44
Apr.	0	1.28	0	1.30	.08	1.37	0	1.86	0	1.89
May	4.25	2.56	4.06	3.05	5.39	3.45	3.74	3.75	3.46	2.97
June	.04	2.23	.16	2.63	.39	1.61	T	1.95	.39	2.20
July	.79	1.28	.94	1.37	3.66	.96	.47	1.87	.59	1.56
Aug.	.55	1.66	.93	2.33	.24	2.20	.87	1.70	1.57	2.18
Sep.	1.50	2.86	1.89	3.18	2.44	3.06	2.28	2.24	1.13	3.08
Oct.	2.52	1.75	2.28	2.10	3.85	1.99	1.97	2.48	4.33	2.12
Nov.	.39	.98	1.10	1.02	.20	1.18	.31	1.02	0	1.08
Dec.	1.97	.87	1.89	.77	2.09	.74	1.97	.80	1.93	.70
Yearly	14.14	17.81	15.43	19.93	20.35	18.38	13.95	19.82	15.81	19.95

Month	Las Espuelas, * Tamaulipas		San Ignacio, Tamaulipas		Muzquiz, Coahuila		Conchos, Coahuila		Sabinas, Coahuila	
	1984	Average	1984	Average	1984	Average	1984	Average	1984	Average
Jan.	3.50	1.03	2.76	0.73	2.36	0.84	0	0.30	1.57	0.60
Feb.	0	1.03	0	1.02	0	.50	0	.80	0	.68
Mar.	0	.77	0	.49	0	.75	T	.27	T	.37
Apr.	0	1.54	0	1.35	0	1.11	0	1.40	0	1.30
May	5.20	4.30	3.35	3.18	4.29	3.68	.79	2.18	5.35	2.54
June	0	2.58	.39	2.17	.59	3.25	0	2.53	0	2.05
July	0	2.57	T	1.23	4.17	2.71	1.97	1.75	1.30	1.37
Aug.	0	1.74	.39	2.31	1.22	2.63		2.09	.12	2.04
Sep.	4.02	3.70	2.17	3.30	3.58	4.82	.83	3.19	3.07	3.37
Oct.	.51	2.42	1.93	2.68	4.37	2.14	2.28	2.17	5.08	1.80
Nov.	0	1.15	0	1.14	.31	1.13	.24	.52	.24	.64
Dec.	1.69	.96	1.57	.86	1.02	.85	1.02	.47	.51	.53
Yearly	14.92	23.79	12.56	20.47	21.91	24.52		17.67	17.24	17.29

Month	Ejido lo. de Mayo, Coahuila		Cuatro Ciénegas, Coahuila		Ocampo, Coahuila		Progreso, Coahuila		San Buenaventura, Coahuila	
	1984	Average	1984	Average	1984	Average	1984	Average	1984	Average
Jan.	2.28	1.39	2.32	0.36	2.23	0.45	0.75	0.51	0.04	0.58
Feb.	0	.10	0	.35	0	.25	0	.64	0	.49
Mar.	0	.00	0	.12	0	.17	.12	.35	0	.36
Apr.	.51	1.40	T	.35	0	.79	0	1.19	0	.85
May	2.20	1.75	1.65	.81	0	1.19	2.53	2.14	4.29	1.53
June	1.18	1.00	.39	.73	0	1.53	0	1.70	.31	1.51
July	3.11	2.20		.83	0	1.54	1.38	1.09	.04	1.55
Aug.	.79	.81	T	1.09	0	1.49	.20	1.90		1.76
Sep.	1.02	.32	.39	1.40	0	1.92	1.46	2.86		2.29
Oct.	1.46	1.39	1.97	.75	0	1.05	2.48	1.80		1.40
Nov.	0	.30	.12	.44	0	.48	.08	.62		.55
Dec.	.43	.13		.46	0	.46	1.05	.50		.71
Yearly	12.98	10.79		7.69	2.23	11.32	10.21	15.30		13.58

T Trace

* Formerly titled "Rancho Las Espuelas, Tamaulipas"

**RAINFALL ON THE RIO GRANDE WATERSHED
IN MEXICO
In Inches**

Month	Castanos, Coahuila		Los Americanos, Coahuila		Presa Carranza, Coahuila		Lag. de Salinillas, Nuevo Leon		Candela, Coahuila	
	1984	Average	1984	Average	1984	Average	1984	Average	1984	Average
Jan.	3.50	0.67	6.54	3.90	1.34	0.71	2.17	0.67	2.56	0.79
Feb.		.52	.35	.32	0	.66	0	.69	0	.52
Mar.	0	.23	0	0	.16	.48	0	.54	0	.11
Apr.	0	.39	0	.77	0	1.29	T	1.26	0	1.17
May	4.02	2.11	.83	.71	1.46	2.10	6.69	2.35	4.80	1.80
June	5.71	2.05	1.57	.89	0	1.77	.63	2.01	.12	1.88
July	5.51	1.60	2.60	1.29	.59	1.04	.28	1.00	2.13	2.34
Aug.		2.43	2.95	1.06	.87	1.93	0	2.25	.08	2.06
Sep.	.67	2.57	0	.38	1.89	2.90	2.28	3.15	3.50	2.76
Oct.	.16	1.69	2.32	1.16		1.70	2.91	2.05	1.97	1.29
Nov.	0	.34	0	.36	.24	.59	0	.70	1.02	.67
Dec.	.28	.29	.55	1.66		.63	1.14	.60	.63	.57
Yearly		15.39	17.71	12.50		15.80	16.10	17.27	16.81	15.96

Month	Lampazos, Nuevo Leon		San Nicolas, Nuevo Leon		Anahuac, Nuevo Leon		Rio Salado Hwy. 85, Nuevo Leon *		Espinazo, Nuevo Leon	
	1984	Average	1984	Average	1984	Average	1984	Average	1984	Average
Jan.	3.94	0.77	1.46	1.01	2.52	0.72	3.86	0.76	4.33	1.98
Feb.	0	.79	0	.72	0	.65	.16	.80	.24	.58
Mar.	.16	.48	.28	.78	1.02	.51	.12	.49	T	.22
Apr.	.08	1.10	0	1.70	.04	1.14	0	1.27	T	1.19
May	6.26	2.43	3.70	3.20	7.80	2.44	6.42	2.76	1.77	2.00
June	.04	2.75	.20	2.26	.08	1.99	0	2.56	.75	1.04
July	.71	1.85	.31	.40	.71	1.34	.71	2.15	2.95	1.69
Aug.	.08	1.82	.08	2.09	.31	2.33	0	1.95	T	1.08
Sep.	3.94	4.80	3.07	2.20	2.60	3.14	6.50	4.22	1.30	.76
Oct.	1.93	2.04	3.07	2.24	1.89	1.72	1.02	1.76	.87	1.25
Nov.	.63	.77	.08	.52	0	.69	0	.87	.04	.57
Dec.	.47	.62	1.57	1.05	1.10	.73	.79	.65	.47	.45
Yearly	18.24	20.22	13.82	18.17	18.07	17.40	19.58	20.24	12.72	12.81

Month	Villaldama, Nuevo Leon		Fresnillo, Nuevo Leon		El Alamo, Nuevo Leon		Ojo de Agua (Sabinas), N. L.		Sabinas Hidalgo, Nuevo Leon	
	1984	Average	1984	Average	1984	Average	1984	Average	1984	Average
Jan.	4.76	1.97	4.80	2.24		1.32	6.06	2.33	4.33	0.76
Feb.	0	.49	.24	.91	0	.71	0	.84	T	.80
Mar.	0	.25	0	.85	0	.68	0	.45	0	.63
Apr.	0	1.80	0	.29	0	1.24	0	1.64	T	1.26
May	5.04	2.25	.75	1.27	2.68	3.33	11.69	4.48	10.79	2.80
June	2.24	2.16	0	.22	2.36	2.94	1.34	1.46	.98	3.48
July	2.76	1.73	0	.46	2.36	1.60	.83	1.98	.55	2.65
Aug.	0	2.80	0	.16	.28	1.80	0	2.67	0	2.35
Sep.	3.62	4.50	4.02	1.98	6.06	3.13	.98	2.24	3.74	6.28
Oct.	3.11	1.46	.51	.33	.12	1.40	1.93	1.48	2.60	2.52
Nov.	.12	.63	.08	.63	.55	.45	.08	.55	.59	.97
Dec.	1.26	.82	1.42	1.10	2.87	1.56	.51	.24	.98	.64
Yearly	22.91	20.86	11.82	10.44		20.16	23.42	20.36	24.56	25.14

Month	Garza Ayala, Nuevo Leon		Vallecillo, Nuevo Leon		Las Tortillas, Tamaulipas		Rancho Bonanza, Tamaulipas		Rancho San Rafael, Bustamante, Tamps.	
	1984	Average	1984	Average	1984	Average	1984	Average	1984	Average
Jan.	4.69	0.93	5.75	0.89	3.15	0.77	4.09	1.22	3.15	0.88
Feb.	0	.59	.76	.76	T	1.04	0	1.15	T	1.12
Mar.	0	.47	0	.50	T	.51	0	.70	0	.59
Apr.	0	1.82	.08	1.73	0	1.32	0	1.00	0	1.17
May	3.27	1.92	1.42	2.01	4.72	3.55	2.72	3.32	5.04	3.41
June	.31	1.58	.83	2.93	.59	2.98	0	2.19	.39	3.11
July	.47	4.31	.08	1.66	3.27	1.25	1.89	2.42	1.97	1.67
Aug.	0	2.17	0	1.82	1.18	2.18	0	1.69	1.65	2.65
Sep.	4.80	4.27	11.46	4.47	2.56	3.68	5.59	3.06	2.17	3.80
Oct.	.59	2.75	.20	1.90	.63	1.83	0	1.79	.47	2.72
Nov.	.31	1.92	.39	.87	0	1.09	0	.90	0	1.11
Dec.	1.02	.41	.87	.69	1.54	.86	2.09	1.01	2.28	.79
Yearly	15.46	23.14		20.23	17.64	21.06	16.38	20.45	17.12	23.02

T Trace

* Formerly titled "Rio Salado Carr. 85, Nuevo Leon"

**RAINFALL ON THE RIO GRANDE WATERSHED
IN MEXICO
In Inches**

Month	Rio Salado Riberena, Tamps.		Aniego 166, Tamaulipas		La Bandera, Tamaulipas		Nueva Cd. Guerrero, Tamaulipas		La Escondida, Nuevo Leon	
	1984	Average	1984	Average	1984	Average	1984	Average	1984	Average
Jan.	3.07	0.72	3.15	0.89	3.11	0.86	3.86	0.99	6.10	2.00
Feb.	0	.86	.71	1.09	.83	1.04	.71	1.00	.28	.91
Mar.	T	.46	0	.53	0	.61	T	.52	.00	.83
Apr.	0	1.18	0	1.05	0	1.31	T	1.15	4.41	2.50
May	2.68	2.76	3.62	3.29	2.64	3.16	4.45	2.54		2.79
June	1.77	2.32	1.65	2.93	1.89	3.30	2.76	2.63	3.03	2.89
July	1.77	1.54	.47	1.37	.71	1.70	.55	1.26	.94	.87
Aug.	1.65	2.32	0	2.22	0	2.13	.08	2.05	.08	3.83
Sep.	2.56	4.21	3.78	5.07	3.50	4.77	3.86	4.13	8.90	3.31
Oct.	.20	1.92	1.34	1.99	1.26	1.85	.63	2.07		1.20
Nov.	0	1.14	.39	1.01	.47	.97	.39	.96	1.57	.72
Dec.	1.57	.89	.59	.76	.67	.81	.79	.71	2.60	1.76
Yearly	15.27	20.32	15.70	22.21	15.08	22.51	18.08	20.01		23.61

Month	Hacienda El Alamo, Nuevo Leon		Agualeguas, Nuevo Leon		General Trevino, Nuevo Leon		Paras, Nuevo Leon		San Javier, Nuevo Leon	
	1984	Average	1984	Average	1984	Average	1984	Average	1984	Average
Jan.	5.08	1.28	5.75	2.42	4.96	1.74	4.33	0.78	2.91	0.89
Feb.	.20	.98	.04	.88	.08	1.53	.59	.71	.91	1.31
Mar.	0	.45	.47	.75	.04	.56	T	.58	0	.60
Apr.	0	1.06	0	1.72	.04	1.57	0	.83	0	1.54
May	2.72	2.32	2.64	3.12	1.50	3.74	2.32	1.95	4.25	3.43
June	.98	3.42	2.56	2.14	2.28	1.95	.91	2.82	2.56	3.34
July	3.19	2.55	3.54	1.46	1.50	.92	3.62	1.46	.79	2.01
Aug.	.28	3.28	.59	1.72	.31	2.32	.98	2.20	0	2.75
Sep.	6.22	4.89	3.82	2.21	5.83	5.11	4.72	3.57	4.45	5.27
Oct.	.47	2.41	.59	1.90	.55	1.52	.35	2.19	.91	2.12
Nov.	.51	.98	.51	.82	.39	.86	.51	.92	.55	1.02
Dec.	2.83	.93	.94	.63	1.14	1.15	1.34	.61	.43	.82
Yearly	22.48	24.55	21.45	19.77	18.62	22.97	19.67	18.62	17.76	25.10

Month	Cd. Mier, Km. 8 SW, Tamaulipas		Cd. Mier, Tamaulipas		Miguel Aleman, Tamaulipas		Parras, Coahuila		San Juan de Vaqueria, Coahuila	
	1984	Average	1984	Average	1984	Average	1984	Average	1984	Average
Jan.	5.24	1.00	4.02	1.08	4.57	1.02	3.19	0.65	3.07	1.63
Feb.	.87	1.60	.94	1.22	.20	1.17	.16	.35	.04	.39
Mar.	0	.65	0	.60	0	.38	0	.29	0	.32
Apr.	0	1.29	0	1.30	0	1.62	0	.37	0	.83
May	4.76	3.03	4.88	2.78	1.42	2.06	2.20	1.21	1.30	2.07
June	2.28	3.16	2.20	2.43	2.60	2.83	1.34	1.74	1.14	1.19
July	.71	1.67	.16	1.18	.79	1.91	2.28	2.47	4.65	3.36
Aug.	0	2.59	.98	2.57	0	1.97	1.69	2.81	4.96	3.86
Sep.	4.09	4.73	6.77	4.58	3.31	5.24	.87	2.65	2.28	2.39
Oct.	1.85	2.72	.47	2.09	.39	2.02	.39	1.23	1.10	1.32
Nov.	.87	.99	.59	1.04	1.02	.92	.28	.65	.04	.47
Dec.	.31	.81	.20	.78	.87	.77	1.18	.74	1.18	.32
Yearly	20.98	24.24	21.21	21.65	15.17	21.91	13.58	15.16	19.76	18.15

Month	General Cepeda, Coahuila		Hipolito, Coahuila		Reata, Coahuila		San Antonio de las Alazanas, Coahuila		Saltillo, Coahuila	
	1984	Average	1984	Average	1984	Average	1984	Average	1984	Average
Jan.	2.09	0.51	1.65	0.64	3.70	0.44	4.84	1.12	2.56	0.61
Feb.	0	.48	.20	.61	.24	.24	0	.67	.08	.54
Mar.	0	.26	0	.24	.31	.28	0	.43	T	.39
Apr.	0	.44	0	.58	0	.43	0	.93	T	.77
May	1.93	.90	.91	.83	.39	.83	.91	1.92	.83	1.21
June	1.34	2.06	.20	.25	1.30	1.02	1.50	2.59	.47	2.11
July	4.21	3.17	.79	.79	2.48	1.06		3.45	2.48	2.53
Aug.	1.02	2.96	.39	1.30	.79	1.45		3.07	.94	2.48
Sep.	1.73	2.78	2.76	1.17	.94	1.50	.71	2.74	1.14	2.64
Oct.	.24	1.20	.59	.80		.74	1.81	1.76	.47	1.25
Nov.	0	.50	0	.46		.51	0	.95	.08	.79
Dec.	.71	.55	.55	.29		.39	.87	.86	.79	.63
Yearly	13.27	15.81	8.04	7.96		8.89		20.49	9.84	15.95

T Trace

RAINFALL ON THE RIO GRANDE WATERSHED IN MEXICO In Inches

Month	Ramos Arizpe, Coahuila		Huachichil, Coahuila		Huizachal, Coahuila		Carbonera, Nuevo Leon		Icamole, Nuevo Leon	
	1984	Average	1984	Average	1984	Average	1984	Average	1984	Average
Jan.	2.24	0.50	5.24	3.99	3.94	1.86	6.14	1.05	3.27	0.44
Feb.	0	.36	4.88	2.10	0	.22	.43	.60	.12	.31
Mar.	0	.28	0	.50	0	.03	T	.53	0	.15
Apr.	0	.47	0	1.30	0	.13	T	.96	0	.34
May	.31	.90	1.54	3.52	4.88	2.19	.94	2.03	.87	.79
June	.43	1.03	2.40	1.78	.51	1.46	4.45	2.36	1.50	.96
July	1.46	1.32	5.20	3.16	4.25	1.56	2.01	2.75	.94	.61
Aug.	.67	1.34	2.48	2.20		.12		2.94	T	.89
Sep.	1.34	1.70	.94	2.78	1.26	1.26		2.71	.91	2.02
Oct.	.47	.75	2.64	1.58		.77		1.84	.47	1.02
Nov.	0	.48	0	.51	.24	.30		.90	.20	.69
Dec.	.55	.50	.91	.32		1.06		.98	.28	.46
Yearly	7.47	9.63		23.94		10.96		19.65	8.56	9.68

Month	Mina, Nuevo Leon		La Popa, Nuevo Leon		La Arena, Nuevo Leon		Cienega de Flores, Nuevo Leon		Hacienda Manulique, Nuevo Leon	
	1984	Average	1984	Average	1984	Average	1984	Average	1984	Average
Jan.	4.80	0.63	2.20	0.54	5.43	0.94	0.08	1.24	4.29	1.16
Feb.	.12	.40	.20	.66	.12	.80	1.42	.97	.28	.42
Mar.	T	.16	0	.24	T	.59	T	1.01	.04	.34
Apr.	0	.61	0	.57	.20	1.16	.12	1.49		.99
May	2.20	.86	.91	.95	4.37	2.59	4.21	2.62	1.89	1.63
June	.71	1.48	T	1.58	1.18	3.13	1.26	3.17	3.46	2.58
July	3.15	1.26	3.54	1.30	1.97	3.13	2.60	2.29	.83	3.26
Aug.		1.68	T	1.79	.47	3.61	.16	4.46	.91	3.17
Sep.	1.73	3.03	.55	2.97	4.41	5.44	3.43	5.74	3.35	4.54
Oct.	.39	1.01	.20	.71	.83	2.50	.94	2.54	2.52	1.44
Nov.	.35	.68	0	.66	.79	.83	.55	1.16	.75	1.12
Dec.	1.34	.50	0	.70	1.57	.62	2.01	1.17	2.05	.93
Yearly		12.30	7.60	12.67	21.34	25.44	16.78	27.86		21.58

Month	La Pomona, Nuevo Leon		San Diego, Nuevo Leon		Cola de Caballo, Nuevo Leon		Una de Gato, Nuevo Leon		Ejido Marin, Nuevo Leon	
	1984	Average	1984	Average	1984	Average	1984	Average	1984	Average
Jan.	5.20	2.13	4.65	3.90	6.46	2.59	5.67	1.66	4.25	1.73
Feb.	.16	.65	0	.25	.43	.87	.20	.56	.08	.92
Mar.	.04	1.37	0	.44	.08	.70	0	.57	0	.58
Apr.	0	2.07	12.17	5.83	1.18	2.30	0	1.80	.20	1.02
May	6.54	5.85	15.08	8.54	9.45	5.35	3.39	4.01	4.02	2.98
June	1.22	2.82	2.09	5.12	2.09	4.34	2.36	2.03	.71	1.65
July	3.27	2.40		.35	8.46	4.78	3.23	1.82	1.50	1.52
Aug.	3.54	3.48		5.61	2.56	7.22	1.61	2.82	.20	2.16
Sep.	7.35	4.83	4.96	5.88	13.07	14.79	11.89	5.83	2.80	3.72
Oct.	.08	1.11	0	1.87	.87	3.98	1.65	1.15	1.02	.96
Nov.	.39	.83	.87	.69	2.40	1.05	.91	.60	.71	.61
Dec.	1.30	1.01		1.55	.79	.61	2.13	1.47	1.42	1.16
Yearly	29.10	28.55		41.03	47.84	48.58	33.04	24.32	16.91	19.01

Month	La Huasteca, Nuevo Leon		Vaqueria, Nuevo Leon		Topo Chico, Nuevo Leon		Tepehuaje, Nuevo Leon		Gomez Farias, Coahuila	
	1984	Average	1984	Average	1984	Average	1984	Average	1984	Average
Jan.	3.74	0.95	5.93	2.32	4.02	0.54	6.54	2.42	3.23	1.63
Feb.	0	.22	0	.93	0	.55	.47	.65	1.38	.60
Mar.	0	.11	0	1.57	0	.45	T	.51	T	.15
Apr.	0	.45	0	1.41	0	1.07	0	1.79	T	1.19
May	4.57	1.85	5.24	4.20	2.76	1.62	1.85	4.79	1.69	1.78
June	.12	1.46	1.81	2.56	1.18	2.27	1.50	2.40	.47	1.42
July	1.81	1.49	1.46	1.58	2.05	1.60	2.99	2.45	3.39	1.79
Aug.	.39	1.50	3.19	2.87	.16	3.03	1.42	3.42	2.68	2.25
Sep.	2.17	3.90	7.80	4.12	1.85	4.79	4.65	5.42	1.34	1.86
Oct.	.39	1.24	.35	1.69	.63	2.59	.51	1.50	.87	1.24
Nov.	.24	.24	.31	.95	.71	.74	.43	.67	T	.26
Dec.	.16	.38	1.69	2.04	.71	.49	1.57	1.22	.67	.83
Yearly	13.59	13.79	27.93	26.24	14.07	19.74	21.93	27.24	15.72	15.00

T Trace

**RAINFALL ON THE RIO GRANDE WATERSHED
IN MEXICO
In Inches**

Month	Higueras, Nuevo Leon		Los Ramones, Nuevo Leon		Cerro Prieto, Nuevo Leon		Los Herrera, (La Tableta), N.L.		Madero(Los Aldamas), Nuevo Leon	
	1984	Average	1984	Average	1984	Average	1984	Average	1984	Average
Jan.	5.47	0.76	7.09	0.84	6.26	0.97	4.96	0.73	6.38	1.43
Feb.	.04	.62	.16	.74	.24	.56	.16	.64	.20	.74
Mar.	T	.59	T	.59	T	.48	.08	.60	T	.76
Apr.	.08	1.26	.24	1.45	0	1.12	.08	1.31	0	.95
May	6.85	2.15	2.52	2.71	3.19	4.75	1.73	2.86	1.59	3.14
June	1.61	2.60	1.54	3.06	2.01	3.34		2.61	.98	3.76
July	3.54	2.27	2.13	1.87	3.31	2.30	2.83	1.86	.91	2.16
Aug.	.16	3.39	1.77	3.45	2.28	3.34	1.65	2.68		4.73
Sep.	5.04	4.82	3.70	5.76	8.27	5.14		4.88	3.62	5.84
Oct.	.71	1.81	.63	2.68	.20	2.73		2.31		1.92
Nov.	.47	.80	.71	.71	.24	.80	.75	.65	.63	.52
Dec.	2.28	.72	1.97	.59	.63	.69	.83	.54	1.97	.87
Yearly	26.25	21.89	22.46	24.45	26.63	26.22		21.67		26.82

Month	El Brasil, Nuevo Leon		Rinconada, Nuevo Leon		Santa Catarina, Nuevo Leon		Monterrey, Nuevo Leon		Apodaca, Nuevo Leon	
	1984	Average	1984	Average	1984	Average	1984	Average	1984	Average
Jan.	5.63	1.79	3.03	0.41	3.31	0.72	4.33	0.64	2.05	0.72
Feb.	.47	1.20	0	.28	0	.41	0	.69	.16	.80
Mar.	0	.35	0	.21	0	.32	0	.71	0	.62
Apr.	0	1.76	0	.46	0	.72	0	1.13	T	1.18
May	1.65	3.29	1.46	.60	2.28	1.01	8.39	1.77	2.24	2.24
June	.87	1.51	.28	1.07	.20	1.90	1.46	2.76	2.01	2.70
July	2.13	1.64	1.42	.60	2.52	1.24	2.95	2.42	1.65	2.14
Aug.	1.57	2.28		1.25	.28	2.56	.16	3.23	.28	3.13
Sep.	3.94	2.98	3.90	1.88	5.20	4.33	4.84	5.95	3.62	5.30
Oct.	.91	1.46	.43	.87	.31	1.66	.59	3.12	1.22	2.03
Nov.	.43	.62	0	.38	.31	.54	.87	1.17	.35	.83
Dec.	1.14	1.04	0	.34	.20	.50	1.26	.70	.75	.71
Yearly	18.74	19.92		8.35	14.61	16.01	24.85	24.30	14.33	22.40

Month	Pajonal, Nuevo Leon		La Cruz, Nuevo Leon		Tunel San Fco., Nuevo Leon *		Las Comitas, Nuevo Leon		Rodrigo Gomez Res., Nuevo Leon **	
	1984	Average	1984	Average	1984	Average	1984	Average	1984	Average
Jan.	3.94	0.66	5.63	1.09	4.65	1.28	2.80	0.40	6.38	0.99
Feb.	.94	.61	2.13	.63	.43	1.14	.39	.43	.35	.96
Mar.	1.14	.29	0	.36	.28	1.41	0	.22	0	1.07
Apr.	0	1.04		1.10	1.42	2.25	0	.68	.31	1.76
May		2.07	3.94	1.89	12.20	3.86	2.40	1.11	10.39	2.91
June	5.63	2.59	3.86	2.47	2.56	6.16	.91	2.34	1.97	5.52
July	1.61	2.54	5.24	3.18	5.35	4.29	.71	1.80	7.05	3.81
Aug.	2.40	3.84	2.40	3.86	2.40	7.07	1.42	3.26	2.17	6.23
Sep.	8.23	5.17	7.87	6.14	13.62	11.54	6.54	4.76	8.82	9.74
Oct.	.31	2.00	1.69	2.10	1.30	5.85	0	1.71	.71	4.96
Nov.	.47	.56	.79	.78	1.73	1.72	.12	.49	1.34	1.33
Dec.	.20	.62	1.89	.40	1.61	.99	.31	.40	.87	.89
Yearly		21.99		24.00	47.55	47.56	15.60	17.66	40.36	40.17

Month	Las Enramadas, Nuevo Leon		Adjuntas, Nuevo Leon		Villa Allende, Nuevo Leon		Pobladores, Nuevo Leon		Laguna de Sanchez, Nuevo Leon	
	1984	Average	1984	Average	1984	Average	1984	Average	1984	Average
Jan.	7.72	0.99	3.86	0.92	6.54	1.17	7.40	2.66	6.77	0.76
Feb.	.20	.71	.04	.53	.20	1.24	.20	1.13	.35	.64
Mar.	0	.70	0	.37	T	1.26	0	.58	.20	.40
Apr.	0	1.78	.39	1.56	.39	2.59	0	2.28	0	1.18
May	1.02	2.88	1.93	2.94	6.42	3.93	7.95	3.34	5.51	1.91
June	.75	3.15	.24	7.28	2.91	5.19	.59	.60	1.57	3.49
July	4.29	2.34	1.89	4.96	4.49	3.64	2.80	2.34	2.52	2.55
Aug.	2.83	3.76	2.05	5.43	0	5.43	1.54	1.30	2.72	4.39
Sep.	6.54	6.50	13.70	11.80	11.77	9.20	6.34	4.34	10.39	6.61
Oct.	.39	2.53	.35	4.75	1.10	5.19	.75	.38	.75	2.64
Nov.	0	.75	1.06	.79	1.10	1.62	.20	.66	.47	.67
Dec.	2.60	.79	.67	.44	1.26	1.02	1.18	3.52	.67	.56
Yearly	26.34	26.88	26.18	41.77	36.18	41.48	28.95	23.13	31.92	25.80

T Trace

* Formerly titled "Tunel San Francisco, Nuevo Leon"

** Formerly titled "Presa Rodrigo Gomez, Nuevo Leon"

RAINFALL ON THE RIO GRANDE WATERSHED IN MEXICO In Inches

Month	Cerritos, Nuevo Leon		Casillas, Nuevo Leon		Cienega del Toro, Nuevo Leon		Mimbres, Nuevo Leon		Rusio, Nuevo Leon	
	1984	Average	1984	Average	1984	Average	1984	Average	1984	Average
Jan.	3.70	1.00	5.71	0.87	7.36	1.32	9.25	1.67	3.94	0.84
Feb.	.08	.90	.31	.62	.43	.55	.94	1.21	.24	.55
Mar.	.04	.52	0	.52	.31	.75	.16	1.04	.24	.54
Apr.	0	1.54		1.04	0	1.48	0	1.57	0	1.16
May	6.06	3.79	2.72	2.27	1.02	2.54	1.85	2.68	.20	1.68
June	2.99	6.28	1.38	3.14	3.39	2.36	5.35	3.02	1.69	1.81
July	7.32	5.94	1.89	2.54	1.38	3.06	1.73	2.91	.79	1.15
Aug.	2.24	5.55	2.72	3.00	2.60	3.10	3.03	3.53	1.30	1.44
Sep.	7.72	11.83	5.16	4.54	1.34	3.34	5.35	4.03	.51	1.60
Oct.	.31	3.69		2.44	2.24	2.12	1.26	2.08	.63	1.19
Nov.	1.10	.69	0	.67	.04	.87	.16	1.17		.67
Dec.		.51	.75	.50	1.18	.77	1.73	1.04	.43	.78
Yearly		42.24		22.15	21.29	22.26	30.81	25.95		13.41

Month	Rayones, Nuevo Leon		Galeana, Nuevo Leon		Iturbide, Nuevo Leon		Cabezones, Nuevo Leon		Montemorelos, Nuevo Leon	
	1984	Average	1984	Average	1984	Average	1984	Average	1984	Average
Jan.	4.96	0.49	5.51	0.62	6.54	0.70	7.05	1.15	6.38	0.92
Feb.	0	.40	.28	.49	.04	.64	.16	.81	.16	.95
Mar.	0	.33	0	.33	0	.60	.08	1.10	T	1.13
Apr.	0	1.03		1.19	0	1.18	.31	2.33	0	2.22
May	2.91	1.85	2.76	1.89	4.13	2.20	8.19	3.99	7.36	3.44
June	2.05	2.08	2.48	1.81	2.28	3.41		4.08	2.52	3.95
July	.83	1.21	2.44	1.69	2.01	2.69	2.95	3.14	5.43	2.39
Aug.	.71	2.77	2.52	2.46	2.60	4.22	.71	5.15	2.40	4.19
Sep.	4.96	3.41	4.76	3.16	11.14	6.11	9.45	9.54	9.45	6.46
Oct.	.04	1.57	.67	1.41	.20	2.43	.98	3.38	.71	3.80
Nov.	0	.43	T	.30	.24	.53	.24	.99	.31	1.60
Dec.	.55	.38		.63	1.02	.59	.16	.80	1.85	.93
Yearly	17.01	15.95		15.98	30.20	25.30		35.46	36.57	31.98

Month	El Realito, Nuevo Leon		Cienega de La Purissima, Coahuila		El Cuchillo, Nuevo Leon		General Bravo, Nuevo Leon		Cerralvo, Nuevo Leon	
	1984	Average	1984	Average	1984	Average	1984	Average	1984	Average
Jan.	6.34	1.17	9.84	4.92	5.00	0.75	5.04	0.84	5.63	0.80
Feb.	0	.51	0	.00	.16	.57	.20	.60	.08	.69
Mar.	0	.52	0	.59	.12	.49	.20	.54	.12	.57
Apr.	0	1.49	0	1.04	0	1.34	0	1.47	0	1.67
May	3.39	3.12	1.22	3.50	3.15	2.44	1.73	2.93	2.09	3.24
June	3.15	2.62	2.01	2.27	.98	2.53	.67	2.53	2.32	3.12
July	4.65	2.73		3.74	.98	1.88	1.42	2.18	2.24	1.86
Aug.	2.83	3.95	3.19	3.48	2.99	2.86	.98	2.68	.16	3.30
Sep.	8.66	6.14	3.35	5.14	4.02	4.57	2.05	4.48	9.17	5.23
Oct.	.08	1.74	.75	1.82	.79	1.93	.71	2.00	.75	2.60
Nov.	0	.46	0	1.97	.55	.57		.87	.16	.72
Dec.	1.89	.85	1.30	1.09	1.14	.55	.59	.75	1.30	.52
Yearly	30.99	25.30		29.56	19.88	20.48		21.87	24.02	24.32

Month	El Cuervito, Nuevo Leon		Comales, Tamaulipas		Camargo, Tamaulipas		Valadezes, Tamaulipas		Bajo Rio San Juan, Tamps., No. 2-29	
	1984	Average	1984	Average	1984	Average	1984	Average	1984	Average
Jan.	2.91	2.59	4.53	0.92	5.43	1.07	5.35	1.31	5.24	1.40
Feb.	.12	1.22	.24	.79	.24	.99	.16	.95	.28	1.01
Mar.	.04	.90	0	.62	.04	.52	0	.54	0	.48
Apr.	0	1.34	0	1.57	0	1.56	0	1.41	0	1.39
May	0	2.61	1.69	2.08	2.80	2.39	2.95	2.72	3.90	3.40
June	0	2.48	.83	2.11	3.54	2.48	2.76	3.01	2.44	2.73
July	T	.00	.75	1.38	.28	1.36	.55	1.54	1.93	1.51
Aug.	.16	.16	.16	2.67	.20	2.22	1.10	2.35	.08	2.49
Sep.	2.83	2.36	2.91	4.07	3.43	4.57	3.03	4.57	4.76	4.04
Oct.	.20	2.21	.35	2.36	.87	2.08	.67	2.29	1.22	2.31
Nov.	0	.68	.79	.74	1.57	1.05	.67	1.10	.67	.94
Dec.	.28	.38	1.42	.78	1.10	.75	.47	.86	1.06	.94
Yearly	6.54	16.93	13.67	20.09	19.50	21.04	17.71	22.65	21.58	22.64

**RAINFALL ON THE RIO GRANDE WATERSHED
IN MEXICO
In Inches**

Month	Cd. Diaz Ordaz, Tamaulipas		Reynosa Km. 22 SW, Tamaulipas		Bajo Rio San Juan, Tamps., No. 2-38		Bajo Rio San Juan, Tamps., No. 2-33		Arguelles, Tamaulipas	
	1984	Average	1984	Average	1984	Average	1984	Average	1984	Average
Jan.	5.20	1.15	4.33	1.34	4.25	1.36	4.41	1.39	3.15	1.26
Feb.	.24	1.01	.79	.84	.28	.85	.31	.94	.79	1.20
Mar.	0	.57	0	.65	0	.48	0	.51	0	.55
Apr.	0	1.45	0	1.51	0	1.38	0	1.56	0	1.50
May	2.56	2.63	1.18	2.82	1.77	3.31	1.22	3.76	1.26	3.08
June	3.43	2.45	3.35	2.84	2.68	3.05	1.14	2.83	1.79	2.42
July	2.68	1.38	.79	1.83	3.23	1.87	2.05	1.84	1.18	1.54
Aug.	0	2.24	.98	2.39	.91	3.34	.47	2.98	.79	2.13
Sep.	4.13	3.74	5.91	4.12	5.23	3.85	4.69	4.09	4.72	3.70
Oct.	1.10	2.53	2.36	2.13	1.18	1.87	1.02	2.28	1.57	1.85
Nov.	.87	.99	.39	1.03	.55	1.11	.79	1.05	.20	.96
Dec.	1.22	.94	1.18	1.10	1.18	.95	1.02	1.04	.79	1.00
Yearly	21.43	21.08	21.26	22.60	21.31	23.43	17.12	24.32	15.24	21.19

Month	Presa Anzalduas, Tamaulipas		Reynosa, Tamaulipas		Bajo Rio San Juan, Tamps., No. 3-55		Bajo Rio San Juan, Tamps., No. 3-58		Bajo Rio San Juan, Tamps., No. 3-60	
	1984	Average	1984	Average	1984	Average	1984	Average	1984	Average
Jan.	2.83	0.91	5.83	1.20	6.06	1.79	6.14	1.63	6.10	1.50
Feb.	.12	.77	.43	1.03	.39	1.59	.55	1.38	.55	1.28
Mar.	0	.52	0	.72	0	.67	0	.63	0	.62
Apr.	0	1.44	0	1.24	0	1.97	0	1.58	0	1.52
May	1.26	2.62	2.80	2.57	4.02	2.68	3.31	2.79	4.53	2.59
June	.47	2.25	1.06	2.21	.71	3.07	.79	2.73	.39	3.09
July	.59	1.50	1.30	1.62	.31	2.57	.28	2.76	.31	1.99
Aug.	1.22	2.46	1.02	1.96	.55	2.69	.31	2.62	.63	2.54
Sep.	4.13	3.54	4.88	3.67	9.61	4.53	11.81	5.14	10.04	4.95
Oct.	.94	2.27	1.22	2.27	2.05	2.84	1.42	2.70	0	2.61
Nov.	.20	.67	.47	.91	.08	.84	.08	.95	0	.96
Dec.	1.02	.64	2.35	.88	2.17	1.05	2.44	1.04	4.17	1.11
Yearly	12.78	19.59	21.37	20.28	25.95	26.29	27.13	25.95	26.72	24.76

Month	Bajo Rio San Juan, Tamps., No. 3-47		Bajo Rio San Juan, Tamps., No. 3-63		Rio Bravo, Tamaulipas		Retamal, Tamaulipas		Bajo Rio Bravo, Tamps., No. 3-15	
	1984	Average	1984	Average	1984	Average	1984	Average	1984	Average
Jan.	4.72	1.79	5.87	1.62	4.65	1.40	4.65	1.09	5.43	1.73
Feb.	.39	1.31	.20	1.34	.47	1.11	.59	1.10	.31	1.44
Mar.	0	.58	0	.53	0	.67	0	.64	0	.75
Apr.	0	1.60	0	1.32	0	1.60	0	1.43	0	2.03
May	2.40	3.28	7.24	2.64	3.74	2.39	3.74	2.72	4.76	2.82
June	1.30	3.17	.24	3.37	1.06	2.78	.39	2.45	.39	3.78
July	.47	2.52	.20	2.05	1.38	2.25	.87	1.57	.94	2.53
Aug.	.63	2.56	1.22	2.87	.51	2.83	1.02	2.65	2.13	3.42
Sep.	8.19	4.43	11.69	5.11	10.79	5.16	10.51	3.62	9.41	4.49
Oct.	.71	2.25	1.02	2.41	1.06	2.64	1.81	2.50	1.93	2.70
Nov.	.08	.91	0	.83	.12	1.16	.04	1.15	0	1.16
Dec.	2.40	1.13	3.70	1.11	3.74	.98	2.56	1.03	2.48	1.45
Yearly	21.29	25.53	31.38	25.25	27.52	24.97	26.18	21.96	27.78	28.35

Month	Bajo Rio Bravo, Tamps., No. 4-16		Bajo Rio Bravo, Tamps., No. 3-14		Bajo Rio Bravo, Tamps., No. 3-17		Bajo Rio Bravo, Tamps., No. 4-8		Bajo Rio Bravo, Tamps., No. 2-6	
	1984	Average	1984	Average	1984	Average	1984	Average	1984	Average
Jan.	5.98	1.54	4.96	1.47	6.18	1.74	5.04	1.69	4.88	1.96
Feb.	.20	1.32	.39	1.30	.63	1.37	1.65	1.39	.59	1.48
Mar.	0	.71	0	.53	0	.66	0	.84	0	.79
Apr.	0	1.90	0	1.47	0	1.48	.20	2.14	0	1.69
May	4.80	2.95	4.17	3.22	4.25	2.70	3.94	3.27	5.16	2.94
June	.47	3.86	.24	2.74	0	3.02	.51	2.93	.31	2.75
July	.59	2.15	3.70	2.57	.59	2.51	1.50	2.80	1.02	2.48
Aug.	.59	3.72	.35	2.67	1.46	3.44	2.36	4.17	1.61	3.33
Sep.	11.65	5.14	8.74	4.04	15.20	5.01	10.83	5.55	17.28	5.06
Oct.	2.13	2.63	2.05	2.45	1.50	2.46	.79	2.76	1.54	2.85
Nov.	0	1.35	0	.83	0	1.27	0	1.35	.12	1.41
Dec.	4.13	1.23	3.70	1.31	2.24	1.40	1.97	1.20	2.52	1.25
Yearly	30.54	28.50	28.30	24.66	32.05	27.06	28.79	30.14	35.93	27.99

**RAINFALL ON THE RIO GRANDE WATERSHED
IN MEXICO
In Inches**

Month	Bajo Rio Bravo, Tamps., No. 4-10		Control, Tamaulipas		Bajo Rio Bravo, Tamps., No. 2-5		Bajo Rio Bravo, Tamps., No. 2-11		Bajo Rio Bravo Tamps., No. 1-2	
	1984	Average	1984	Average	1984	Average	1984	Average	1984	Average
Jan.	6.38	1.59	5.39	1.37	6.10	1.90	6.26	1.69	6.10	1.70
Feb.	.91	1.74	.39	1.09	.59	1.37	.71	1.44	.31	1.72
Mar.	0	.97	.04	.62	0	1.01	0	.68	0	.55
Apr.	0	2.00	0	1.53	.08	1.69	0	2.49	0	1.57
May	3.50	2.71	1.65	2.90	3.58	2.86	3.11	2.77	3.19	3.38
June	.55	2.83	.24	2.78	.94	2.90	0	3.81	1.42	3.19
July	.75	2.45	1.77	1.81	1.30	2.16	1.69	2.67	3.11	2.06
Aug.	.71	3.23	1.77	3.27	2.32	3.45	1.30	3.76	3.50	3.67
Sep.	17.72	5.99	14.33	5.09	15.59	5.04	12.99	5.57	5.00	4.62
Oct.	2.52	2.51	2.52	2.71	2.56	2.75	5.31	2.88	1.89	2.82
Nov.	0	1.21	.04	1.26	.16	1.28	.59	1.26	0	1.33
Dec.	2.80	1.10	3.70	1.13	.91	1.31	1.50	1.33	0	1.08
Yearly	35.84	28.33	31.84	25.66	34.13	27.72	33.46	30.35	24.52	27.69

Month	Bajo Rio Bravo, Tamps., No. 2-7		Bajo Rio Bravo, Tamps., No. 1-4		Bajo Rio Bravo, Tamps., No. 1-18		Bajo Rio Bravo, Tamps., No. 1-3		Bajo Rio Bravo, Tamps., No. 1-13	
	1984	Average	1984	Average	1984	Average	1984	Average	1984	Average
Jan.	5.59	1.58	5.55	1.79	6.93	1.74	5.04	1.65	5.08	1.52
Feb.	.51	1.29	.16	1.23	.28	1.28	.28	1.23	.67	1.22
Mar.	0	.75	0	.72	.12	.57	0	.53	0	.54
Apr.	0	2.56	0	2.03	0	1.77	0	1.86	0	1.73
May	2.87	2.76	3.74	2.80	5.43	2.82	2.72	2.62	1.42	1.89
June	1.02	3.36	.71	3.10	.75	2.91	.39	2.89	.43	2.96
July	1.89	2.35	1.73	2.05	1.81	2.39	1.50	1.76	1.65	1.96
Aug.	.98	3.95	.75	3.19	1.42	3.36	.24	2.80	.71	3.39
Sep.	13.03	5.24	12.60	5.05	15.20	5.05	10.55	5.36	9.33	5.12
Oct.	1.89	2.43	2.60	2.70	1.06	3.08	1.65	2.71	2.52	2.44
Nov.	0	1.35	.39	1.17	0	1.29	0	1.39	.24	.98
Dec.	2.28	1.15	1.18	1.36	3.11	1.44	1.42	1.47	1.22	1.14
Yearly	30.06	28.77	29.41	27.19	36.11	27.70	23.79	26.27	23.27	24.39

Month	Bajo Rio Bravo, Tamps., No. 1-12		Matamoros, Tamaulipas						
	1984	Average	1984	Average					
Jan.	4.96	1.87	5.55	1.84					
Feb.	.39	1.35	.87	1.75					
Mar.	0	.59	.08	.54					
Apr.	0	2.04	0	2.05					
May	3.62	3.11	7.52	2.84					
June	.47	2.85	.75	3.40					
July	2.44	2.77	1.46	2.59					
Aug.	1.81	3.17	4.76	4.20					
Sep.	11.81	5.44	1.78	6.44					
Oct.	.51	3.30	1.61	3.50					
Nov.	0	1.28	T	1.49					
Dec.	1.50	1.39	3.94	1.89					
Yearly	27.51	29.16	45.32	32.53					

T Trace

AVERAGE RAINFALL ON SUBDIVISIONS OF THE RIO GRANDE WATERSHED

With Averages for the 114 Years 1871 - 1984, Inclusive

In Inches

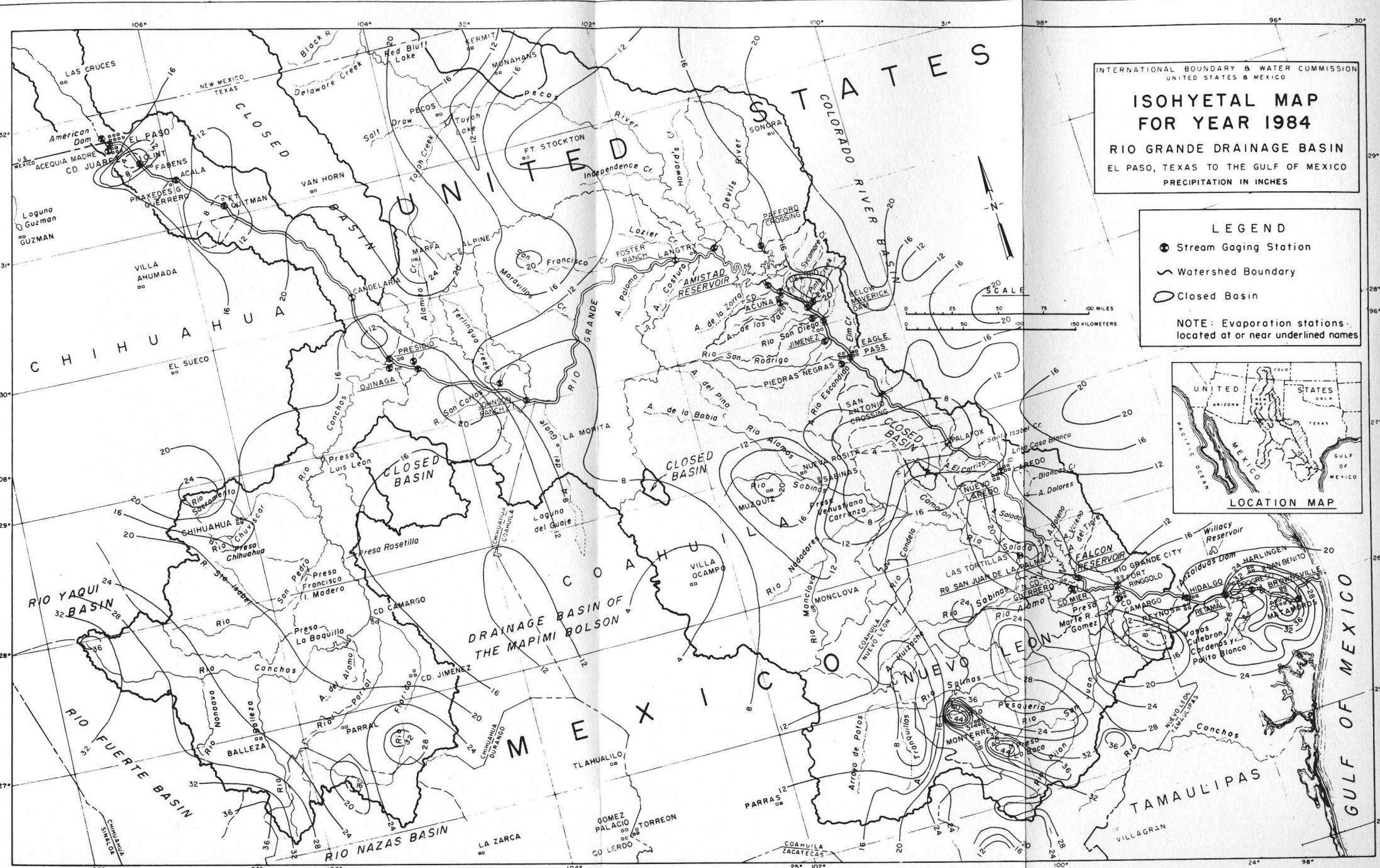
The precipitation records of all stations on or adjacent to the watershed subdivisions listed below have been used, with proper weighting for area, in calculating the average rainfalls shown here. The drainage area for each subdivision is shown in parentheses. The hundreds of individual records are delineated in the various "Indexes to Precipitation Records" shown in Water Bulletins Nos. 10, 14, 22, 26, and Supplement 40A.

Month	El Paso to Fort Quitman (2,677 Square Miles)		Fort Quitman to Above Rio Conchos (3,056 Square Miles)		* Above Rio Conchos to Johnson Ranch (3,782 Square Miles)		Johnson Ranch to Foster Ranch (12,982 Square Miles)	
	1984	Period Average	1984	Period Average	1984	Period Average	1984	Period Average
Jan.	1.08	0.45	0.47	0.40	0.40	0.35	0.64	0.48
Feb.	.37	.37	0	.27	0	.28	.03	.37
Mar.	.20	.32	.05	.25	.01	.20	.06	.39
Apr.	.01	.27	0	.34	0	.41	0	.79
May	.69	.41	1.24	.62	1.24	.78	1.03	1.49
June	1.65	.80	4.35	1.23	4.65	1.18	2.45	1.59
July	.99	2.22	2.03	2.90	1.38	1.86	1.07	1.83
Aug.	2.60	1.88	3.17	2.42	3.67	1.93	.67	2.08
Sept.	.95	1.45	1.33	2.00	1.03	1.62	1.47	2.17
Oct.	2.75	.93	1.91	1.04	1.04	.88	2.49	1.24
Nov.	.79	.44	1.18	.42	1.28	.36	1.12	.60
Dec.	1.25	.58	1.43	.54	1.12	.41	.89	.54
Yearly	12.96	10.12	17.16	12.43	15.82	10.26	11.97	13.67

Month	Pecos River below Sheffield (3,390 Square Miles)		# Foster Ranch to Amistad Dam (2,799 Square Miles)		Devils River (4,305 Square Miles)		+ Amistad Dam to Eagle Pass (1,625 Square Miles)	
	1984	Period Average	1984	Period Average	1984	Period Average	1984	Period Average
Jan.	1.30	0.69	0.97	0.51	1.82	0.68	1.46	0.74
Feb.	.14	.85	.04	.65	.12	.73	.12	.90
Mar.	.29	.76	.01	.74	.35	1.04	.26	.97
Apr.	.02	1.83	.02	1.34	.14	1.76	.15	1.71
May	1.54	1.84	1.28	1.96	.98	2.58	2.24	2.87
June	1.70	2.41	.68	2.16	1.35	2.62	.68	2.48
July	1.35	1.82	.94	1.24	1.37	1.77	.97	1.85
Aug.	.15	1.98	.47	1.65	.55	2.12	.10	1.94
Sept.	2.55	2.48	1.85	2.32	2.24	2.93	1.44	3.02
Oct.	2.82	1.88	2.54	1.46	3.02	2.23	4.03	2.09
Nov.	1.39	.93	1.62	.77	1.64	1.49	1.06	1.05
Dec.	1.70	.74	2.90	.63	3.19	.98	2.87	.86
Yearly	14.95	18.21	13.22	15.43	16.67	20.93	15.43	20.48

Month	! Eagle Pass to Laredo (3,795 Square Miles)		** Laredo to Falcon Dam (3,369 Square Miles)		## Falcon Dam to Rio Grande City (468 Square Miles)		United States Side below Rio Grande City (986 Square Miles)	
	1984	Period Average	1984	Period Average	1984	Period Average	1984	Period Average
Jan.	0.97	0.71	2.62	0.76	3.39	0.99	4.26	1.29
Feb.	.02	.79	.18	.80	.73	.85	.64	1.13
Mar.	.16	.90	.03	.78	.02	.90	.10	1.02
Apr.	0	1.61	0	1.40	.01	1.19	.02	1.39
May	2.11	3.12	3.35	3.19	2.17	2.41	2.67	2.82
June	.55	2.43	.38	1.99	1.11	2.10	.93	2.52
July	.35	1.45	.97	2.05	.90	1.83	1.45	1.81
Aug.	.42	2.27	.49	1.87	.23	2.13	1.27	2.39
Sept.	1.50	2.99	1.79	3.05	1.84	3.52	9.37	4.38
Oct.	2.01	1.87	2.01	1.67	1.50	1.94	2.05	2.55
Nov.	.26	.94	.31	1.50	.49	.78	.35	1.35
Dec.	1.40	.96	1.56	.84	.43	.68	1.49	1.24
Yearly	9.75	20.04	13.79	19.90	12.82	19.28	24.65	23.89

* Excluding Rio Conchos, Alamito Creek, and Terlingua Creek # Excluding Pecos and Devils Rivers
+ Excluding Arroyo Las Vacas, San Felipe Creek, Pinto Creek, Rio San Diego, and Rio San Rodrigo
! Excluding Rio Escondido ** Excluding Rio Salado above old Cd. Guerrero
Excluding Rio Alamo and Rio San Juan



INTERNATIONAL BOUNDARY & WATER COMMISSION
 UNITED STATES & MEXICO

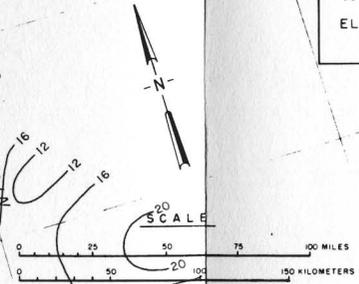
ISOHYETAL MAP FOR YEAR 1984

RIO GRANDE DRAINAGE BASIN
 EL PASO, TEXAS TO THE GULF OF MEXICO
 PRECIPITATION IN INCHES

LEGEND

- Stream Gaging Station
- ~ Watershed Boundary
- Closed Basin

NOTE: Evaporation stations located at or near underlined names



LOCATION OF RAINFALL STATIONS ON THE RIO GRANDE WATERSHED

The precipitation records of stations listed below began on the date shown and extend through 1984. For detailed information regarding sources of data, specific periods of record, and other pertinent matters relative to these and additional rainfall stations on the Rio Grande watershed, see "Index to Precipitation Records" in Water Bulletins Nos. 10, 14, 22, 26, and Supplement 40A. With the exception of Las Cruces, New Mexico, all United States precipitation stations listed below are in Texas, while those in Mexico are in the indicated state as shown.

In the United States

NAME OF STATION	TYPE GAGE	LATI-TUDE	LONGI-TUDE	ELEV. (FT.)	RECORD BEGAN	WATERSHED SUBDIVISION	OBSERVER
Adobes Ranch	S	29° 46'	104° 34'	2,550	# 1950	Fort Quitman - Above Rio Conchos	T. C. Davis
American Dam	S	31° 47'	106° 32'	3,730	# 1938	El Paso - Fort Quitman	I. B. & W. C.
Amistad Dam	R	29° 28'	101° 02'	1,150	July 1962	Foster Ranch - Amistad Dam	I. B. & W. C.
Amistad Reservoir near Comstock	C	29° 33'	101° 13'	1,130	# 1970	Foster Ranch - Amistad Dam	I. B. & W. C.
Apache Ranch	C	27° 56'	99° 56'	500	# 1953	Eagle Pass - Laredo	Ranch Foreman
Arroyo Tigre Chiquito	C	26° 41'	99° 07'	314	#Apr. 1954	Laredo - Falcon Dam	I. B. & W. C.
Baker, A. A. Ranch	R	29° 44'	101° 09'	1,720	July 1952	Devils River	I. B. & W. C.
Bakers Crossing	S	29° 58'	101° 09'	1,520	#Apr. 1955	Devils River	Mrs. Mary Hughey
Big Satan Creek Station	C	29° 40'	100° 58'	1,150	Nov. 1968	Devils River	I. B. & W. C.
Britz, J. G. Ranch	R	29° 33'	101° 01'	1,150	#Sep. 1952	Devils River	I. B. & W. C.
Brotherton Ranch	V	29° 42'	101° 19'	1,400	1961	Foster Ranch - Amistad Dam	Perry Calk
Buoy No. 11	C	29° 31'	101° 10'	66	#Dec. 1959	Foster Ranch - Amistad Dam	I. B. & W. C.
Canon Diablo	C	28° 39'	100° 27'	700	# 1964	Eagle Pass - Laredo	I. B. & W. C.
CCWID #11 (Bayview Dist. Off.) Avg. 18 Gages	S	26° 08'	97° 21'	25	# 1952	Lower Rio Grande Valley	CCWID #11
CCWID #19 (Adams Gardens)	S	26° 10'	97° 47'	50	1952	Lower Rio Grande Valley	CCWID #19
Cnittin Ranch	C	28° 44'	100° 28'	810	Mar. 1959	Amistad Dam - Eagle Pass	I. B. & W. C.
Coal Mine	R	23° 45'	100° 28'	770	#Mar. 1959	Amistad Dam - Eagle Pass	I. B. & W. C.
Comstock	R	29° 41'	101° 10'	1,530	May 1939	Foster Ranch - Amistad Dam	I. B. & W. C.
Continental Ranch	S	29° 51'	101° 18'	1,560	# 1965	Pecos River below Sheffield	Julio Crowder
Cooper Ranch	C	28° 50'	100° 27'	900	Mar. 1959	Amistad Dam - Eagle Pass	I. B. & W. C.
Corrallitos Ranch	C	27° 07'	99° 25'	346	1953	Laredo - Falcon Dam	I. B. & W. C.
Cow Creek near Comstock	C	29° 37'	101° 12'	1,310	Apr. 1955	Amistad Dam	I. B. & W. C.
Crane, Ed Ranch	S	29° 51'	101° 05'	1,630	# 1955	Devils River	Ed Crane
Cuervo Creek Station	C	23° 21'	100° 19'	620	1954	Eagle Pass - Laredo	I. B. & W. C.
Dead Mans Canyon near Comstock	C	29° 47'	101° 19'	1,320	Sep. 1957	Sheffield	I. B. & W. C.
Devils Lake	R	29° 35'	100° 59'	1,158	#May 1939	Devils River	I. B. & W. C.
Devils River at Cauthorn Ranch	S	30° 05'	101° 07'	1,656	#Apr. 1976	Devils River	I. B. & W. C.
Eagle Pass	S	28° 42'	100° 30'	815	1964	Eagle Pass - Laredo	I. B. & W. C.
Einburg Filtration Plant	S	26° 13'	93° 10'	100	1952	Lower Rio Grande Valley	City of Einburg
El Indio	S	28° 31'	100° 19'	725	# 1941	Eagle Pass - Laredo	Glen Stidham
Elm Creek Station	C	28° 46'	100° 30'	720	1959	Amistad Dam - Eagle Pass	I. B. & W. C.
Evans Creek near Comstock	C	29° 32'	101° 06'	1,180	July 1969	Devils River	I. B. & W. C.
Falcon Dam	S	26° 33'	99° 08'	322	Apr. 1950	Laredo - Falcon Dam	I. B. & W. C.
Farius Ranch	R	28° 36'	100° 20'	720	#Mar. 1959	Eagle Pass - Laredo	I. B. & W. C.
Fawcett, H. K. Ranch	C	29° 52'	100° 54'	1,550	# 1941	Devils River	I. B. & W. C.
Feely	C	29° 34'	101° 07'	1,250	#Apr. 1965	Foster Ranch - Amistad Dam	I. B. & W. C.
H. T. Fletcher Ranch	S	30° 12'	104° 15'	5,100	# 1939	Alamito Creek	H. Mitchell, Jr.
Fort Hancock Bridge	S	31° 16'	105° 51'	3,500	#Apr. 1940	El Paso - Fort Quitman	I. B. & W. C.
Fort McIntosh (Laredo)	S	27° 30'	99° 31'	410	# 1950	Eagle Pass - Laredo	I. B. & W. C.
Foster, Ross Ranch	C	29° 47'	101° 45'	1,230	May 1951	Johnson Ranch - Foster Ranch	I. B. & W. C.
Garcitasville	R	26° 20'	93° 41'	200	#Apr. 1957	Lower Rio Grande Valley	I. B. & W. C.
Gillis Headquarters Ranch	S	29° 37'	100° 47'	1,410	1958	Amistad Dam - Eagle Pass	Jake Schiller
Goldwire Ranch	C	29° 44'	100° 57'	1,695	Nov. 1963	Devils River	I. B. & W. C.
Guayuco Arroyo	C	31° 10'	105° 40'	3,600	#May 1940	El Paso - Fort Quitman	I. B. & W. C.
Harlow Ranch	C	29° 59'	101° 11'	1,695	Mar. 1969	Devils River	I. B. & W. C.
HCWCID #6, Goodwin Pump No. 3	S	26° 16'	98° 24'	175	# 1953	Lower Rio Grande Valley	HCWCID #6
HCWCID #6, Goodwin Pump No. 43	S	26° 19'	93° 23'	210	# 1953	Lower Rio Grande Valley	HCWCID #6
Muisache Ranch	C	26° 57'	99° 21'	383	Aug. 1953	Laredo - Falcon Dam	I. B. & W. C.
Hutto Ranch No. 1	R	29° 30'	100° 50'	1,240	1964	Devils River	I. B. & W. C.
Hutto Ranch No. 2	R	29° 29'	100° 54'	1,210	1964	Devils River	I. B. & W. C.
Indio Ranch	S	24° 21'	100° 22'	700	1959	Eagle Pass - Laredo	Earnest Scales
James, Lewis Ranch	S	30° 11'	102° 07'	2,275	1956	Johnson Ranch - Foster Ranch	Lewis James

S Standard R Recording C Cumulative V Visual # Reservoir surface
Some months or years missing

LOCATION OF RAINFALL STATIONS ON THE RIO GRANDE WATERSHED

In the United States

NAME OF STATION	TYPE GAGE	LATI-TUDE	LONGI-TUDE	ELEV. (FT.)	RECORD BEGAN	WATERSHED SUBDIVISION	OBSERVER
Johnson Ranch	C	29° 01'	103° 23'	2,050	#July 1933	Johnson Ranch - Foster Ranch	I. B. & W. C.
Keisling Farm	S	28° 23'	100° 17'	740	Dec. 1958	Eagle Pass - Laredo	Robert Smith
Kelly, P. W. Ranch	S	29° 46'	101° 12'	1,750	# 1965	Foster Ranch - Amistad Dam	Bobby Kelly
King, Martin Ranch	R	29° 44'	101° 22'	1,460	Nov. 1954	Foster Ranch - Amistad Dam	I. B. & W. C.
La Feria Materials Yard	V	26° 10'	97° 50'	60	# 1960	Lower Rio Grande Valley	CCWCID #3
La Feria Pumping Plant	S	26° 03'	97° 50'	60	# 1952	Lower Rio Grande Valley	CCWCID #3
La Joya	C	25° 15'	98° 29'	150	# 1957	Lower Rio Grande Valley	I. B. & W. C.
La Macolla Farm	S	30° 09'	104° 41'	2,750	Apr. 1977	Fort Quitman - Above Rio Conchos	Tom Pelton
La Mota Ranch	S	29° 33'	103° 59'	3,854	# 1943	Alamito Creek	John Rice
Laredo Water Plant	S	27° 33'	99° 31'	410	# 1930	Eagle Pass - Laredo	Laredo Water Plant
Las Cruces, New Mexico	S	32° 19'	106° 47'	3,393	1975	Caballo Dam - El Paso	I. B. & W. C.
Las Moras Creek	S	29° 00'	100° 38'	800	1958	Amistad Dam - Eagle Pass	Lou McGee
Lateral No. 2 Spill	C	28° 56'	100° 38'	760	Mar. 1959	Amistad Dam - Eagle Pass	I. B. & W. C.
Lateral No. 12 Headgate	C	28° 54'	100° 34'	800	1959	Amistad Dam - Eagle Pass	I. B. & W. C.
Lateral 15 Spill	C	23° 51'	100° 34'	740	# 1959	Amistad Dam - Eagle Pass	I. B. & W. C.
Lewis, Billie C., Jr. Ranch	S	29° 33'	100° 40'	1,400	# 1964	Amistad Dam - Eagle Pass	Lewis, Jr.
Line Store	S	30° 40'	100° 57'	2,400	#Oct. 1962	Devils River	C. Lee Conoway
Long Ranch	R	29° 28'	100° 57'	1,140	Oct. 1971	Devils River	I. B. & W. C.
Los Ebanos	C	26° 14'	98° 34'	150	#Apr. 1957	Lower Rio Grande Valley	I. B. & W. C.
Lowry, Cliff Ranch	R	29° 39'	100° 52'	1,490	June 1962	Devils River	I. B. & W. C.
Lowry Ranca No. 2	R	29° 37'	100° 56'	1,160	May 1965	Devils River	I. B. & W. C.
Maverick County Canal Headgate	S	29° 10'	100° 46'	870	#Mar. 1948	Amistad Dam - Eagle Pass	MCWCID #1
Maverick Power Plant	S	28° 50'	100° 33'	800	June 1952	Amistad Dam - Eagle Pass	C. P. & L. Co.
Middle Fork San Pedro	C	29° 30'	100° 53'	1,170	#June 1969	Devils River	I. B. & W. C.
Miers, H. T. Ranch - Headquarters	C	29° 44'	100° 51'	1,760	# 1957	Devils River	I. B. & W. C.
Miers, H. T. Ranch No. 2	R	29° 44'	100° 53'	1,600	Apr. 1964	Devils River	I. B. & W. C.
Miller, Eugene Ranch	S	30° 26'	101° 10'	2,150	July 1975	Devils River	Eugene Miller
Mitchell, Kerr Ranch	S	30° 13'	104° 00'	4,450	# 1941	Alamito Creek	Mrs. K. Mitchell
Neely Ranch	S	30° 59'	105° 32'	3,350	#Aug. 1941	Fort Quitman - Above Rio Conchos	Mrs. Tom Neely
New Mission Pumping Plant	S	26° 11'	98° 24'	3,870	#Aug. 1961	Lower Rio Grande Valley	HCWCID #14
95 Ranch Headquarters	V	30° 40'	104° 50'	3,870	1972	Fort Quitman - Above Rio Conchos	Walter Paschal
Normandy	S	28° 55'	100° 36'	780	#Dec. 1958	Amistad Dam - Eagle Pass	Fanning G. Lowe
North Fork San Pedro	C	29° 31'	100° 53'	1,144	June 1969	Devils River	I. B. & W. C.
Owens Ranch	S	30° 45'	101° 40'	2,170	#July 1963	Pecos River below Sheffield	Mrs. W.W. Owens
Pafford Crossing	C	29° 41'	101° 00'	1,180	Feb. 1960	Devils River	I. B. & W. C.
Pecos River near Langtry Station	C	29° 48'	101° 27'	1,260	July 1967	Pecos River below Sheffield	I. B. & W. C.
Peritas (Edinburg Pumping Plant)	S	26° 14'	98° 27'	100	July 1957	Lower Rio Grande Valley	B. Leadbetter
Pinto Creek Station	S	29° 09'	100° 43'	870	#Dec. 1958	Amistad Dam - Eagle Pass	I. B. & W. C.
Presidio (IBWC Gage)	C	29° 34'	104° 23'	2,550	#Oct. 1949	Above Rio Conchos - Johnson Ranch	I. B. & W. C.
Prosser Ranch No. 1	C	29° 54'	101° 14'	1,710	Mar. 1965	Pecos River below Sheffield	I. B. & W. C.
Prosser Ranch No. 2	C	29° 59'	101° 16'	1,850	#Mar. 1965	Devils River	I. B. & W. C.
Prosser Ranch No. 3	C	30° 02'	101° 16'	2,020	#Mar. 1965	Pecos River below Sheffield	I. B. & W. C.
Ranchita (Continental)	S	20° 50'	101° 20'	1,540	# 1959	Pecos River below Sheffield	Julio Crowder
Redford	C	29° 29'	104° 13'	2,500	July 1954	Above Rio Conchos - Johnson Ranch	I. B. & W. C.
Rio Grande near Dryden	S	29° 49'	102° 09'	1,350	May 1976	Johnson Ranch - Foster Ranch	I. B. & W. C.
Roma (International Bridge)	S	26° 24'	99° 01'	230	# 1941	Falcon Dam - Rio Grande City	Starr County Bridge Co.
Rosita Creek Siphon	C	28° 41'	100° 24'	750	# 1959	Eagle Pass - Laredo	I. B. & W. C.
Rosita Creek Station	C	28° 36'	100° 24'	700	# 1959	Eagle Pass - Laredo	I. B. & W. C.
Rough Canyon nr. Del Rio	S	29° 35'	100° 56'	1,147	June 1969	Devils River	I. B. & W. C.
San Benito Pump	C	25° 03'	97° 45'	50	Oct. 1933	Lower Rio Grande Valley	I. B. & W. C.
Sawyer, W. E. Ranch	S	30° 28'	100° 47'	2,100	#July 1966	Devils River	Zane Powers and Kenneth Hayes
Sellers Ranch	C	29° 34'	101° 02'	1,190	#Feb. 1960	Devils River	I. B. & W. C.
Shifter	V	29° 49'	104° 19'	3,300	#July 1968	Above Rio Conchos - Johnson Ranch	Raymond Wylie
Shannon, Bill Ranch	C	29° 57'	104° 40'	2,590	#July 1956	Fort Quitman - Above Rio Conchos	Bill Shannon
Stewart Ranch	R	29° 35'	100° 52'	1,330	#Feb. 1960	Devils River	I. B. & W. C.
Study Butte	S	29° 19'	103° 32'	2,550	July 1977	Terlingua Creek	Shirley Willard
Terlingua Creek Station	C	29° 12'	103° 36'	2,215	Mar. 1952	Above Rio Conchos - Johnson Ranch	I. B. & W. C.
Trees Farm	R	23° 38'	100° 25'	720	#Mar. 1959	Eagle Pass - Laredo	I. B. & W. C.

S Standard R Recording C Cumulative V Visual
 ? Some months or years missing

LOCATION OF RAINFALL STATIONS ON THE RIO GRANDE WATERSHED

In the United States

NAME OF STATION	TYPE GAGE	LATI-TUDE	LONGI-TUDE	ELEV. (FT.)	RECORD BEGAN	WATERSHED SUBDIVISION	OBSERVER
Van Dalsen Farm	C	28° 27'	100° 19'	700	# 1959	Eagle Pass - Laredo	I. B. & W. C.
Vinegarone	C	29° 57'	100° 46'	1,780	May 1956	Devils River	I. B. & W. C.
Walker Ranch	C	29° 50'	101° 14'	1,530	July 1969	Devils River	I. B. & W. C.
Wardlaw Standart Ranch	S	29° 19'	100° 38'	1,070	Apr. 1977	Pinto Creek	Hadly Wardlaw
Wayrich Farm	C	28° 40'	100° 24'	750	Sep. 1962	Eagle Pass - Laredo	I. B. & W. C.
Whitensad, Tuffy Ranch	R	29° 33'	101° 07'	1,420	July 1962	Devils River	I. B. & W. C.
Wipff Ranch	C	29° 00'	100° 35'	840	Mar. 1959	Amistad Dam - Eagle Pass	I. B. & W. C.
Wuenschs Farm	S	23° 24'	103° 19'	570	# 1952	Eagle Pass - Laredo	I. B. & W. C.
Yarborough Ranch	S	30° 05'	103° 36'	4,550	# 1956	Johnson Ranch - Foster Ranch	I. B. & W. C.
Zapata Water Plant	S	26° 54'	99° 16'	330	#May 1953	Laredo - Falcon Dam	H. D. Smith Zapata Water Plant
Zuberbusler Ranch	S	29° 41'	101° 14'	1,460	Feb. 1975	Foster Ranch - Amistad Dam	J. U. Zuberbusler

S Standard

R Recording

C Cumulative

V Visual

Some months or years missing

LOCATION OF RAINFALL STATIONS ON THE RIO GRANDE WATERSHED

In Mexico

NAME OF STATION	TYPE GAGE	LATI-TUDE	LONGI-TUDE	ELEV. (FT.)	RECORD BEGAN	WATERSHED SUBDIVISION	OBSERVER
Adjuntas, Nuevo Leon	S	25° 18'	100° 08'	!	# 1958	Rio San Juan	S. A. R. H.
Agualeguas, Nuevo Leon	S	26° 18'	99° 33'	!	# 1979	Rio Alamo	S. A. R. H.
Allende, Coahuila	S	25° 21'	100° 51'	1,170	# 1947	Eagle Pass - Laredo	S. A. R. H.
Amistad Reservoir near Tlaloc, Coahuila	C	29° 26'	101° 07'	1,250	1970	Amistad Dam	I. B. & W. C.
Anahuac, Nuevo Leon	S	27° 15'	100° 03'	656	#June 1933	Rio Salado	S. A. R. H.
Aniego 166, Tamaulipas	C	26° 46'	99° 15'	310	1964	Laredo - Falcon Dam	I. B. & W. C.
Apodaca, Nuevo Leon	S	25° 46'	100° 11'	1,330	#Feb. 1964	Rio San Juan	S. A. R. H.
Arguelles, Tamaulipas	C	26° 11'	98° 28'	!	1962	Lower Rio Grande Valley	I. B. & W. C.
Bachiniva, Chihuahua	S	28° 46'	107° 15'	6,250	# 1952	Adjacent to Rio Conchos	Meteor. Service of Mexico
Bajo Rio Bravo, Tamps.							
No. 1-2	S	25° 56'	97° 46'	!	1964	Lower Rio Grande Valley	S. A. R. H.
No. 1-3	S	25° 50'	97° 42'	!	1964	Lower Rio Grande Valley	S. A. R. H.
No. 1-4	S	25° 51'	97° 45'	!	1964	Lower Rio Grande Valley	S. A. R. H.
No. 1-12	S	25° 56'	97° 38'	!	1964	Lower Rio Grande Valley	S. A. R. H.
No. 1-13	S	25° 44'	97° 40'	!	1964	Lower Rio Grande Valley	S. A. R. H.
No. 1-18	S	25° 49'	97° 42'	!	1964	Lower Rio Grande Valley	S. A. R. H.
No. 2-5	S	25° 48'	97° 49'	!	1964	Lower Rio Grande Valley	S. A. R. H.
No. 2-6	S	25° 44'	97° 53'	!	1964	Lower Rio Grande Valley	S. A. R. H.
No. 2-7	S	25° 39'	97° 42'	!	1964	Lower Rio Grande Valley	S. A. R. H.
No. 4-8	S	25° 40'	97° 55'	!	1964	Lower Rio Grande Valley	S. A. R. H.
No. 4-10	S	25° 36'	97° 52'	!	1964	Lower Rio Grande Valley	S. A. R. H.
No. 2-11	S	25° 35'	97° 46'	!	# 1964	Lower Rio Grande Valley	S. A. R. H.
No. 3-14	S	25° 56'	97° 59'	!	1964	Lower Rio Grande Valley	S. A. R. H.
No. 3-15	S	25° 46'	98° 01'	!	1964	Lower Rio Grande Valley	S. A. R. H.
No. 3-17	S	25° 49'	97° 58'	!	1964	Lower Rio Grande Valley	S. A. R. H.
No. 4-15	S	25° 35'	98° 00'	!	1964	Lower Rio Grande Valley	S. A. R. H.
Bajo Rio San Juan, Tamps.							
No. 2-29	S	26° 10'	98° 39'	!	1964	Lower Rio Grande Valley	S. A. R. H.
No. 2-33	S	26° 10'	98° 28'	!	1964	Lower Rio Grande Valley	S. A. R. H.
No. 2-38	S	26° 05'	98° 34'	!	1964	Lower Rio Grande Valley	S. A. R. H.
No. 3-47	S	25° 58'	98° 07'	!	1964	Lower Rio Grande Valley	S. A. R. H.
No. 3-55	S	25° 52'	98° 12'	!	1964	Lower Rio Grande Valley	S. A. R. H.
No. 3-58	S	25° 50'	98° 11'	!	1964	Lower Rio Grande Valley	S. A. R. H.
No. 3-60	S	25° 46'	98° 10'	!	1964	Lower Rio Grande Valley	S. A. R. H.
No. 3-63	S	25° 41'	98° 06'	!	1964	Lower Rio Grande Valley	S. A. R. H.
Balleza, Chihuahua	S	26° 57'	106° 21'	5,870	# 1903	Rio Conchos	Meteor. Service of Mexico
Banderas, Chihuahua	S	31° 01'	105° 35'	!	# 1963	Fort Quitman - Above Rio Conchos	S. A. R. H.
Cabezones, Nuevo Leon	S	24° 59'	99° 45'	!	# 1962	Adjacent to Rio San Juan	S. A. R. H.
Camargo, Chihuahua	S	27° 42'	105° 10'	3,950	#Oct. 1956	Rio Conchos	S. A. R. H.
Camargo, Tamaulipas	S	26° 19'	98° 50'	230	# 1953	Falcon Dam - Rio Grande City	S. A. R. H.
Campo Agricola Experi., Chihuahua	S	31° 22'	106° 09'	3,560	# 1958	El Paso - Fort Quitman	I. B. & W. C.
Candela, Coahuila	S	26° 50'	100° 40'	!	# 1970	Rio Salado	S. A. R. H.
Carbonera, Nuevo Leon	S	25° 49'	100° 47'	!	# 1958	Rio San Juan	S. A. R. H.
Carichic, Chihuahua	S	27° 55'	107° 04'	!	#May 1961	Rio Conchos	Meteor. Service of Mexico
Casillas, Nuevo Leon	S	25° 12'	100° 12'	4,060	# 1958	Rio San Juan	S. A. R. H.
Castanos, Coahuila	S	26° 47'	101° 27'	2,440	# 1932	Rio Salado	Meteor. Service of Mexico
Cd. Acuna, Coahuila	S	29° 20'	100° 57'	900	1951	Amistad Dam - Eagle Pass	I. B. & W. C.
Cd. Diaz Ordaz, Tamaulipas	S	26° 14'	98° 36'	130	# 1953	Lower Rio Grande Valley	S. A. R. H.
Cd. Guerrero, Chihuahua	S	28° 33'	107° 29'	6,560	#May 1903	Adjacent to Rio Conchos	Meteor. Service of Mexico
Cd. Juarez, Chihuahua *	S	31° 44'	106° 28'	3,740	# 1903	El Paso - Fort Quitman	I. B. & W. C.
Cd. Mier, Tamaulipas	S	26° 26'	99° 09'	260	Oct. 1955	Falcon Dam - Rio Grande City	I. B. & W. C.
Cd. Mier Km. 8, SW, Tamaulipas	C	26° 23'	99° 14'	!	1962	Rio Alamo	I. B. & W. C.
Cerralvo, Nuevo Leon	R	26° 05'	99° 37'	1,130	#Nov. 1938	Rio San Juan	S. A. R. H.
Cerritos, Nuevo Leon	S	25° 31'	100° 12'	!	# 1958	Rio San Juan	S. A. R. H.
Cerro Prieto, Nuevo Leon	S	25° 56'	99° 23'	390	#May 1958	Rio San Juan	S. A. R. H.
Chihuahua, Chihuahua	S	28° 33'	106° 04'	4,690	# 1900	Rio Conchos	Meteor. Service of Mexico
Ciénega de Flores, Nuevo Leon	R	25° 57'	100° 10'	1,770	#Apr. 1938	Rio San Juan	S. A. R. H.
Ciénega de La Purisima, Coahuila	S	25° 20'	100° 32'	!	1982	Rio San Juan	S. A. R. H.
Ciénegas del Toro, Nuevo Leon	S	25° 05'	100° 20'	7,010	# 1958	Rio San Juan	S. A. R. H.
Cola de Caballo, Nv. Leon	S	25° 41'	100° 25'	!	# 1978	Rio San Juan	S. A. R. H.
Colombia, Nuevo Leon	C	27° 42'	99° 46'	!	# 1954	Eagle Pass - Laredo	I. B. & W. C.
Colombia, Nuevo Leon	S	27° 42'	99° 45'	!	#Sept. 1976	Eagle Pass - Laredo	S. A. R. H.
Colonia Anahuac, Chihuahua	S	28° 29'	106° 44'	6,550	1961	Rio Conchos	Chin. S.A.

S Standard C Cumulative R Recording ! Not available # Some months or years missing
 * Formerly titled "Juarez, Chihuahua"

LOCATION OF RAINFALL STATIONS ON THE RIO GRANDE WATERSHED

In Mexico

NAME OF STATION	TYPE GAGE	LATI-TUDE	LONGI-TUDE	ELEV. (FT.)	RECORD BEGAN	WATERSHED SUBDIVISION	OBSERVER
Comales, Tamaulipas	R	26° 11'	98° 55'	260	#Mar. 1938	Rio San Juan	S. A. R. H.
Conchos, Coahuila	S	28° 00'	101° 19'	!	#Oct. 1950	Rio Salado	S. A. R. H.
Control, Tamaulipas	S	25° 58'	97° 49'	59	#June 1942	Lower Rio Grande Valley	S. A. R. H.
Coyame, Chihuahua	S	29° 28'	105° 06'	!	#Nov. 1961	Rio Conchos	Meteor. Service of Chihuahua
Cuatro Cienegas, Coahuila	S	26° 59'	102° 04'	2,430	#June 1923	Rio Salado	S. A. R. H.
Cuautepec, Chihuahua	S	28° 24'	106° 52'	7,250	#June 1923	Adjacent to Rio Conchos	Meteor. Service of Mexico
Delicias, Chihuahua	S	28° 11'	105° 28'	3,710	#Aug. 1933	Rio Conchos	S. A. R. H.
Ejido Eutimias, Coahuila	S	28° 20'	102° 45'	3,440	#Apr. 1972	Johnson Ranch - Foster Ranch	S. A. R. H.
Ejido La Rosita, Coahuila	S	28° 27'	103° 18'	3,440	#	Johnson Ranch - Foster Ranch	S. A. R. H.
Ejido Marin, Nuevo Leon	S	25° 50'	100° 00'	!	Mar. 1979	Rio San Juan	S. A. R. H.
Ejido lo. de Mayo, Coahuila	S	27° 13'	101° 13'	!	#	Rio Salado	S. A. R. H.
Ejido San Miguel, Coahuila	S	29° 02'	100° 58'	!	#Feb. 1976	Eagle Pass - Laredo	S. A. R. H.
El Alamo, Nuevo Leon	S	26° 24'	100° 23'	!	1981	Rio Salado	S. A. R. H.
El Brasil, Nuevo Leon	S	25° 53'	98° 59'	!	#	Rio San Juan	S. A. R. H.
El Cuarenta, Chihuahua	S	30° 33'	105° 50'	!	#	Adjacent to Fort Quitman	Meteor. Service of Chihuahua
El Cuchillo, Nuevo Leon	S	25° 43'	99° 16'	590	#June 1938	Rio San Juan	S. A. R. H.
El Cuervito, Nuevo Leon	S	25° 54'	98° 40'	!	#	Rio San Juan	S. A. R. H.
El Maguay, Chihuahua	S	27° 37'	106° 09'	4,380	#July 1955	Rio Conchos	Meteor. Service of Chihuahua
El Realito, Nuevo Leon	S	25° 18'	99° 21'	!	#	Rio San Juan	S. A. R. H.
El Remolino, Coahuila	S	28° 45'	101° 05'	1,310	June 1958	Rio San Rodrigo	I. B. & W. C.
El Sauzal D.B., Chihuahua	S	31° 35'	106° 18'	3,650	July 1970	El Paso - Fort Quitman	S. A. R. H.
El Sitio, Chihuahua	S	27° 34'	106° 16'	!	July 1955	Rio Conchos	Meteor. Service of Chihuahua
El Vergel, Chihuahua	S	26° 22'	106° 30'	7,350	#	Rio Conchos	Meteor. Service of Mexico
Emiliano Zapata, Coahuila	S	29° 01'	100° 49'	!	#Mar. 1976	Eagle Pass - Laredo	S. A. R. H.
Escalon, Chihuahua	S	26° 45'	104° 20'	4,160	#	Adjacent to Rio Conchos	S. A. R. H.
Escuela Escobar, Chihuahua	S	31° 42'	106° 27'	3,690	#	El Paso - Fort Quitman	S. A. R. H.
Espinazo, Nuevo Leon	S	26° 15'	101° 05'	!	1980	Rio Salado	S. A. R. H.
Estacion Rosario, Durango	S	26° 30'	105° 38'	!	#July 1962	Rio Conchos	S. A. R. H.
Fresnillo, Nuevo Leon	S	26° 26'	99° 53'	!	1982	Rio Alamo	S. A. R. H.
Galeana, Nuevo Leon	S	24° 50'	100° 04'	5,430	#	Adjacent to Rio San Juan	Meteor. Service of Mexico
Gallego, Chihuahua	S	29° 50'	106° 23'	5,100	1958	Adjacent to Rio Conchos	Meteor. Service of Chihuahua
Garita Km. 28, Chihuahua	S	31° 33'	106° 28'	3,990	May 1958	El Paso - Fort Quitman	I. B. & W. C.
Garza Ayala, Nuevo Leon	S	26° 29'	100° 03'	!	#	Rio Salado	S. A. R. H.
General Trevino, Nv. Leon	S	26° 13'	99° 29'	!	#Oct. 1975	Rio Alamo	S. A. R. H.
General Bravo, Nuevo Leon	S	25° 48'	99° 11'	590	#Sept. 1906	Rio San Juan	S. A. R. H.
General Cepeda, Coahuila	S	25° 23'	101° 29'	4,920	#Aug. 1926	Rio San Juan	S. A. R. H.
Gomez Farias, Coahuila	S	24° 58'	101° 53'	!	June 1979	Rio San Juan	S. A. R. H.
Guerrero, Coahuila	S	28° 19'	100° 23'	690	#June 1958	Eagle Pass - Laredo	I. B. & W. C.
Hacienda El Alamo, N. Leon	S	26° 29'	99° 46'	!	#	Rio Alamo	I. B. & W. C.
Hacienda Mamulique, N. Leon	S	26° 07'	100° 14'	!	#Sept. 1973	Rio San Juan	S. A. R. H.
Hda. San Miguel, Coahuila	S	29° 13'	101° 30'	!	#	Foster Ranch - Amistad Dam	I. B. & W. C.
Higueras, Nuevo Leon	S	25° 58'	100° 01'	1,640	#Sept. 1906	Rio San Juan	Meteor. Service of Mexico
Hipolito, Coahuila	S	25° 42'	101° 24'	!	#	Rio San Juan	S. A. R. H.
Huachichil, Coahuila	S	25° 12'	100° 50'	!	#	Rio San Juan	S. A. R. H.
Huizachal, Coahuila	S	25° 42'	100° 57'	!	1982	Rio San Juan	S. A. R. H.
Icamole, Nuevo Leon	S	25° 55'	100° 43'	4,900	#	Rio San Juan	S. A. R. H.
Icubide, Nuevo Leon	S	24° 44'	99° 54'	!	1941	Adjacent to Rio San Juan	S. A. R. H.
Jarita, Nuevo Leon	C	27° 26'	99° 48'	680	#Mar. 1961	Laredo - Falcon Dam	S. A. R. H.
Jimenez, Chihuahua	S	27° 08'	104° 55'	4,490	#	Rio Conchos	S. A. R. H.
Jimenez, Coahuila	S	29° 04'	100° 40'	810	#	Amistad Dam - Eagle Pass	I. B. & W. C.
Km. 135, Chihuahua	S	28° 22'	105° 37'	3,940	#	Rio Conchos	S. A. R. H.
La Amistad, Coahuila	S	29° 27'	101° 05'	!	Feb. 1977	Amistad Dam - Eagle Pass	I. B. & W. C.
La Arena, Nuevo Leon	S	25° 46'	100° 01'	!	#	Rio San Juan	S. A. R. H.
La Bandera, Tamaulipas	C	26° 42'	99° 22'	!	1962	Laredo - Falcon Dam	I. B. & W. C.
La Boquilla, Chihuahua	S	27° 32'	105° 25'	4,330	#	Rio Conchos	Elec. Industry of Mexico
La Chuparrosa, Coahuila**	R	29° 30'	101° 15'	1,150	#	Foster Ranch - Amistad Dam	I. B. & W. C.
La Cruz, Nuevo Leon	S	25° 28'	100° 26'	!	#	Rio San Juan	S. A. R. H.
La Escondida, Nuevo Leon	S	25° 16'	99° 46'	!	#	Rio San Juan	S. A. R. H.
La Huasteca, Nuevo Leon	S	25° 30'	100° 30'	!	#	Rio San Juan	S. A. R. H.
La Pomona, Nuevo Leon	S	24° 59'	99° 12'	!	Mar. 1979	Rio San Juan	S. A. R. H.
La Popa, Nuevo Leon	S	26° 10'	100° 50'	3,230	#	Rio San Juan	S. A. R. H.
La Trasquila, Chihuahua	S	29° 08'	107° 08'	!	#	Adjacent to Rio Conchos	S. A. R. H.
Laguna de Salinillas, Nuevo Leon	S	27° 26'	100° 23'	750	#	Rio Salado	S. A. R. H.

S Standard C Cumulative ! Not available # Some months or years missing

* Formerly titled "Escuela de Agricultura Escobar, Chihuahua"

R Recording

** Formerly titled "Rancho La Chuparrosa, Coahuila"

LOCATION OF RAINFALL STATIONS ON THE RIO GRANDE WATERSHED

In Mexico

NAME OF STATION	TYPE GAGE	LATI-TUDE	LONGI-TUDE	ELEV. (FT.)	RECORD BEGAN	WATERSHED SUBDIVISION	OBSERVER
Laguna de Sanchez, Nv. Leon	R	25° 22'	100° 17'	6,500	#Apr. 1941	Rio San Juan	S. A. R. H.
Lampazos, Nuevo Leon	S	27° 02'	100° 30'	1,120	# 1958	Rio Salado	S. A. R. H.
Las Burras, Chihuahua	S	28° 31'	105° 26'	3,590	July 1949	Rio Conchos	S. A. R. H.
Las Comitas, Nuevo Leon	S	25° 30'	100° 24'	1,670	# 1940	Rio San Juan	S. A. R. H.
Las Enramadas, Nuevo Leon	S	25° 30'	99° 31'	730	#Sept. 1926	Rio San Juan	S. A. R. H.
Las Espuelas, Tamaulipas*	S	27° 07'	99° 27'	!	Nov. 1971	Laredo - Falcon Dam	Delfino Garcia P.
Las Tortillas, Tamaulipas	C	26° 50'	99° 34'	360	#May 1961	Rio Salado	I. B. & W. C.
Las Virgenes, Chihuahua	S	28° 10'	105° 38'	4,070	# 1943	Rio Conchos	S. A. R. H.
Lazaro Cardenas, Chihuahua	S	28° 23'	105° 37'	3,940	# 1961	Rio Conchos	Meteor. Service of Mexico
Los Americanos, Coahuila	S	27° 11'	103° 17'	!	1982	Adjacent Rio Salado	S. A. R. H.
Los Barriles, Chihuahua	S	30° 55'	105° 45'	4,860	July 1958	El Paso - Fort Quitman	I. B. & W. C.
Los Herrera (La Tableta), Nuevo Leon	R	25° 54'	99° 24'	820	#Sept. 1939	Rio San Juan	S. A. R. H.
Los Ramones, Nuevo Leon	R	25° 42'	99° 38'	260	#Sept. 1939	Rio San Juan	S. A. R. H.
Maclovio Herrera, ** Chihuahua	S	29° 04'	105° 09'	3,220	# 1924	Rio Conchos	Meteor. Service of Mexico
Madero (Los Aldamas), Nuevo Leon	S	26° 02'	99° 12'	!	#May 1970	Rio San Juan	S. A. R. H.
Majoma, Chihuahua	S	28° 55'	104° 21'	4,270	Aug. 1955	Rio Conchos	Meteor. Service of Chihuahua
Majalca, Chihuahua	S	28° 53'	106° 21'	6,860	June 1963	Rio Conchos	Meteor. Service of Mexico
Manuel Benavides, Chihuahua	S	29° 06'	103° 54'	!	#Oct. 1961	Above Rio Conchos - Johnson Ranch	Meteor. Service of Chihuahua
Matamoros, Tamaulipas	S	25° 52'	97° 30'	33	# 1958	Lower Rio Grande Valley	Meteor. Service of Mexico
Meoqui, Chihuahua	S	28° 16'	105° 29'	3,790	1961	Rio Conchos	Meteor. Service of Chihuahua
Miguel Aleman, Tamaulipas	S	26° 24'	99° 02'	180	1964	Falcon Dam - Rio Grande City	S. A. R. H.
Mimbres, Nuevo Leon	S	24° 58'	100° 16'	!	# 1958	Rio San Juan	S. A. R. H.
Mina, Nuevo Leon	S	26° 00'	100° 32'	!	# 1958	Rio San Juan	S. A. R. H.
Montemorelos, Nuevo Leon	S	25° 12'	99° 50'	1,420	#Aug. 1904	Rio San Juan	S. A. R. H.
Monterrey, Nuevo Leon	S	25° 40'	100° 18'	1,740	# 1896	Rio San Juan	S. A. R. H.
Muzquiz, Coahuila	S	27° 53'	101° 31'	1,650	# 1923	Rio Salado	S. A. R. H.
Nonoava, Chihuahua	S	27° 29'	106° 44'	!	# 1963	Rio Conchos	Meteor. Service of Chihuahua
Nueva Cd. Guerrero, Tamaulipas	S	26° 34'	99° 14'	350	#May 1954	Laredo - Falcon Dam	I. B. & W. C.
Nuevo Laredo, Tamaulipas	S	27° 30'	99° 30'	430	1950	Eagle Pass - Laredo	I. B. & W. C.
Nuevo Laredo, Tamaulipas	S	27° 30'	99° 30'	430	# 1909	Eagle Pass - Laredo	Meteor. Service of Mexico
Nuevo Laredo Km. 26, SSW, Tamaulipas	C	27° 17'	99° 37'	!	#Apr. 1961	Laredo - Falcon Dam	I. B. & W. C.
Nuevo Laredo (Sur), Tamaulipas	S	27° 26'	99° 32'	413	#May 1975	Laredo - Falcon Dam	I. B. & W. C.
Ocampo, Coahuila	S	27° 19'	102° 24'	3,770	#May 1960	Adjacent to Rio Salado	S. A. R. H.
Ojinaga, Chihuahua	S	29° 34'	104° 24'	2,590	#Apr. 1954	Rio Conchos	I. B. & W. C.
Ojinaga, Chihuahua	S	29° 34'	104° 25'	2,620	#Nov. 1906	Rio Conchos	Meteor. Service of Mexico
Ojo Caliente, Chihuahua	S	27° 41'	105° 12'	4,010	1942	Rio Conchos	S. A. R. H.
Ojo de Agua (Sabinas), Nuevo Leon	S	26° 30'	100° 11'	!	1980	Rio Salado	S. A. R. H.
Pajonal, Nuevo Leon	S	25° 29'	100° 23'	5,020	# 1958	Rio San Juan	S. A. R. H.
Palestina, Coahuila	S	29° 09'	100° 59'	1,080	# 1931	Rio San Diego	S. A. R. H.
Paras, Nuevo Leon	S	26° 30'	99° 31'	541	# 1958	Rio Alamo	S. A. R. H.
Parras, Coahuila	S	25° 27'	102° 10'	5,510	1958	Adjacent to Rio San Juan	S. A. R. H.
Parrita, Chihuahua	S	29° 25'	106° 29'	!	# 1958	Adjacent to Rio Conchos	S. A. R. H.
Piedras Negras, Coahuila	S	28° 43'	100° 31'	820	# 1951	Amistad Dam - Eagle Pass	Meteor. Service of Mexico
Pobladores, Nuevo Leon	S	25° 31'	99° 24'	!	1982	Rio San Juan	S. A. R. H.
Porvenir, Chihuahua	S	31° 14'	105° 52'	3,530	1958	El Paso - Fort Quitman	I. B. & W. C.
Posta Zootecnica, Chihuahua	S	28° 41'	106° 04'	4,740	# 1957	Rio Conchos	Meteor. Service of Mexico
Presa Anzalduas, Tamps.	V	26° 08'	98° 20'	105	Apr. 1960	Lower Rio Grande Valley	I. B. & W. C.
Presa Cabeceras, Coahuila	S	29° 02'	101° 05'	!	# 1964	Amistad Dam - Eagle Pass	S. A. R. H.
Presa Carranza, Coahuila	S	27° 31'	100° 37'	790	#June 1927	Rio Salado	S. A. R. H.
Presa Centenario, Coah.	S	29° 13'	100° 57'	!	# 1964	Arroyo Las Vacas	S. A. R. H.
Presa Chihuahua, Chih.	S	28° 34'	106° 10'	5,230	Oct. 1961	Rio Conchos	S. A. R. H.
Presa Luis L. Leon, Chih.	S	28° 57'	105° 17'	!	Oct. 1964	Rio Conchos	S. A. R. H.
Presa San Miguel, Coah.	S	29° 02'	100° 57'	1,000	# 1964	Rio San Diego	S. A. R. H.
Progreso, Coahuila	S	27° 25'	101° 00'	1,210	#Feb. 1943	Rio Salado	S. A. R. H.
Ramos Arizpe, Coahuila	S	25° 32'	100° 57'	4,590	#Apr. 1907	Rio San Juan	Meteor. Service of Mexico
Rancho Bonanza, Tamps.	S	26° 50'	99° 26'	!	1973	Laredo - Falcon Dam	Delfino Garcia P.

S Standard

C Cumulative

R Recording

V Visual

! Not available

* Formerly titled "Rancho Las Espuelas, Tamaulipas"

Some months or years missing

** Formerly titled "Maclovio Herrera (Falconir), Chihuahua"

EVAPORATION IN THE RIO GRANDE BASIN IN THE UNITED STATES In Inches

Tabulated below are records of evaporation observed at eight stations in Texas operated by the United States Section of the Commission from Presidio to Brownsville. At all stations, the exposure to wind was uniform and relatively unimpeded. The sites were kept cleared of all high brush and trees within 150 feet, and all brush, tall weeds, and other obstructions within 100 feet of the fenced enclosures. Within the enclosures all vegetation has been eradicated or kept trimmed to within 3 inches of the ground surface. For specific location of these stations, refer to data opposite same station name shown in "Location of Rainfall Stations on the Rio Grande Watershed," pages 131 through 133 in this bulletin.

Records were obtained by means of:

1. Standard National Weather Service pan. A circular pan, 4 feet in diameter and 10 inches deep, made of 22-gage galvanized iron, is set on a wooden platform with the rim of the pan 15 inches above the ground. The water level is maintained between 2 and 3 inches below the rim of the pan and is measured with a micrometer gage. This type of pan was in operation at Amistad Dam and Falcon Dam.

2. A circular pan, 2 feet in diameter and 36 inches deep, made of 22-gage galvanized iron, is set in the ground with the rim of the pan 3 inches above the ground surface and the top covered with a circular screen of No. 4 (1/4" mesh) galvanized hardware cloth. The water level is maintained between 2.5 and 3.5 inches below the rim of the pan. This type of pan was in operation at Falcon Dam. This same type of pan, equipped with an automatic feed tank that maintains the water at a level 3 inches below the rim of the pan, was in operation at Martin King Ranch and Eagle Pass.

3. An evaporimeter, developed by the United States Section of the Commission and calibrated against a 2-foot pan described above, was in operation at Presidio, Johnson Ranch, Long Ranch, and at a site 7 miles east of Brownsville.

Month	Presidio		Johnson Ranch		Martin King Ranch		Long Ranch	
	1984	Average 1950-1984	1984	# Average 1950-1984	1984	# Average 1956-1984	1984	# Average 1971-1984
Jan.	3.25	3.70	2.28	3.19	2.99	3.05	1.72	2.24
Feb.	5.12	4.96	5.96	4.73	5.30	3.64	4.53	2.82
Mar.	7.37	7.39	8.70	8.00	6.81	6.12	5.26	4.53
Apr.	7.76	9.70	10.41	10.06	12.03	7.59	9.13	5.76
May	9.95	11.19	10.95	11.48	11.65	8.24	8.72	5.82
June	4.06	12.09	9.31	11.79	10.67	10.00	9.20	7.50
July	8.04	11.48		11.32	12.58	11.15	10.31	8.65
Aug.	7.56	10.54	3.93	10.59	12.79	10.62	9.28	7.63
Sept.	6.13	3.33	7.93	8.66	10.91	7.92	7.43	6.24
Oct.	4.63	7.04	7.17	6.75	5.05	5.72	2.61	3.39
Nov.	4.31	4.79	5.14	4.33	4.20	3.90	2.61	2.89
Dec.	3.37	3.52	3.25	3.18	3.09	3.09	1.53	2.17
Total	71.65	95.77		94.76	98.02	81.07	72.93	60.15

Month	Amistad Dam		Eagle Pass		Falcon Dam				Brownsville	
	1984	# Average 1953-1984	1984	# Average 1954-1984	2-Foot Pan		4-Foot Pan		1984	# Average 1959-1984
					1984	# Average 1950-1984	1984	# Average 1956-1984		
Jan.	2.67	3.76	3.19	3.13	2.49	3.40	2.56	3.83	2.37	2.77
Feb.	5.65	4.91	5.02	3.62	4.72	4.24	5.93	5.13	2.53	3.43
Mar.	3.99	8.21	7.71	5.70	7.25	6.46	8.94	8.24	2.34	4.76
Apr.	13.65	10.12	10.99	7.18	10.32	7.93	11.32	10.24	11.39	5.05
May	12.50	10.74	10.54	7.42	10.29	9.22	12.25	11.54	9.03	5.81
June	13.68	12.92	11.40	2.81	11.74	10.65	14.02	13.32	6.69	6.41
July	15.23	14.98	13.07	11.12	12.50	12.33	14.68	15.14	8.57	7.24
Aug.	15.93	13.47	13.32	10.12	12.60	11.15	14.90	13.37	3.30	5.91
Sept.	13.58	10.05	10.89	7.74	9.93	7.92	9.21	9.72	5.55	5.38
Oct.	5.69	7.32	4.70	6.12	5.76	6.33	6.57	7.35	5.13	4.66
Nov.	5.31	4.95	4.19	4.21	5.94	4.80	5.98	5.31	6.25	3.74
Dec.	2.96	3.70	3.08	3.45	4.14	3.69	4.15	3.00	4.45	2.93
Total	115.73	104.83	98.10	79.57	95.58	98.02	111.01	107.19	72.24	60.11

Some months missing

EVAPORATION IN THE RIO GRANDE BASIN IN MEXICO In Inches

Tabulated below are records of evaporation observed at ten stations operated and maintained by the Mexican Section of the Commission. Nine stations are along the Rio Grande from Cd. Juarez, Chihuahua to Retamal, Tamaulipas, and one is located on the Rio Conchos near Ojinaga, Chihuahua. At all stations, except Ojinaga, the sites were kept cleared of all high brush and trees within 150 feet, and of all brush and tall weeds within 100 feet of the fenced enclosures. There are several large trees at the Ojinaga station. The corrugated iron gage well, 42 inches in diameter, and one A-frame of the cableway of the Rio Conchos stream gaging station are in the north end of the enclosure. Inside the enclosures, all vegetation has been eradicated or kept trimmed to within 3 inches of the ground surface. Except for a water barrel and a thermometer shelter in the northeast and northwest corners of the enclosures, the exposure to wind was uniform and relatively unimpeded. For specific location of these stations, refer to data opposite same station name shown in "Location of Rainfall Stations on the Rio Grande Watershed," pages 134 through 137 in this bulletin.

The type of pan used at all these stations was a standard National Weather Service-type pan, 4 feet in diameter and 10 inches deep, made of 22-gage galvanized iron, set on a wooden platform with the rim of the pan 16 inches above the ground. The water level was maintained between 2 and 3 inches below the rim of the pan and was measured with a micrometer gage.

Data for other evaporation stations in the Rio Grande basin in Mexico, which were operated by various Mexican agencies, are available in Water Bulletin No. 54 published by the Mexican Section of the Commission.

Month	Cd. Juarez, Chihuahua		Ojinaga, Chihuahua		Cd. Acuna, Coahuila		La Amistad, Coahuila		Jimenez, Coahuila	
	1984	# Average 1959-1984	1984	# Average 1954-1984	1984	# Average 1951-1984	1984	# Average 1977-1984	1984	# Average 1951-1984
Jan.	2.76	3.11	2.64	3.58	2.24	3.32	3.31	3.68	2.80	3.61
Feb.	4.41	4.63	3.94	4.99	4.96	4.51	6.50	4.97	7.24	4.67
Mar.	7.68	7.94	6.50	8.43	7.05	7.64	9.88	7.64	9.57	7.33
Apr.	10.43	9.81	8.78	10.83	10.91	8.78	13.31	10.22	14.29	8.14
May	12.36	11.28	10.31	12.90	10.71	9.66	11.69	10.21	12.72	9.09
June	10.39	12.25	8.94	13.45	11.30	11.49	12.76	12.44	14.21	10.98
July	10.59	11.02		13.06	12.95	13.08	11.34	14.74	15.71	12.40
Aug.	7.24	9.75		11.12	12.68	11.82	14.25	14.22	14.45	11.25
Sept.	7.60	8.02	7.36	8.75	9.09	8.59	11.18	10.69	12.56	8.29
Oct.	4.65	6.16	4.29	6.83	4.37	6.06	4.92	7.81	5.91	5.90
Nov.	4.61	4.20	3.15	4.25	3.35	3.83	4.45	5.14	4.17	3.92
Dec.	2.24	3.29	2.28	3.27	1.97	3.03	2.60	3.80	2.64	3.24
Total	84.96	91.46		101.46	91.58	91.81	106.19	105.56	116.27	88.83

Month	Hidalgo, Coahuila		Nuevo Laredo, Tamaulipas		Nueva Cd. Guerrero, Tamaulipas		Cd. Mier, Tamaulipas		Retamal, Tamaulipas	
	1984	# Average 1951-1984	1984	# Average 1964-1984	1984	# Average 1954-1984	1984	# Average 1955-1984	1984	# Average 1951-1984
Jan.	4.69	3.77	3.46	4.17	1.97	3.33	1.85	3.56	2.01	3.92
Feb.	4.49	5.00	8.11	5.37	5.55	4.27	5.87	4.80	4.65	4.58
Mar.	5.67	7.54	13.94	8.89	7.91	7.15	8.11	7.78	7.80	6.57
Apr.	10.16	9.35	17.32	10.91	7.09	8.74	11.42	9.50	9.17	7.83
May	6.89	10.73	18.07	11.91	10.31	10.03	10.16	10.59	7.20	8.31
June	8.74	12.73	18.23	13.98	11.38	11.46	11.57	12.23	8.66	8.95
July	10.31	14.37	20.00	15.52	11.85	13.03	12.13	13.93	9.96	9.84
Aug.		13.12	19.57	14.30	12.99	12.06	13.15	12.39	9.65	9.55
Sept.	9.69	9.59	13.11	10.68	7.56	8.72	8.11	9.44	4.65	7.25
Oct.		7.22	8.31	8.13	5.20	6.47	5.67	7.24	5.24	5.99
Nov.	4.33	4.72	7.91	5.63	5.08	4.59	5.12	4.84	4.57	4.38
Dec.	2.91	3.65	5.63	4.30	3.35	3.37	3.70	3.66	3.90	3.82
Total		101.79	153.66	113.79	90.24	93.22	96.86	99.96	77.46	80.99

Some months missing

TEMPERATURE, HUMIDITY, AND WIND

The maximum and minimum temperatures shown for the stations in Mexico are from daily maximum and minimum thermometer observations. The mean monthly temperatures are averages of these daily maximum and minimum temperatures.

The mean monthly temperatures and relative humidities shown for stations in the United States were integrated from continuous records of hygrothermographs, housed in louvered shelters, with the sensing elements of the instruments 16 inches above the ground and 9 feet southwest of either a 2 or 4-foot diameter evaporation pan. The maximum and minimum temperatures shown below are the extreme temperatures for the month as recorded on the charts except for Falcon Dam and Amistad Dam, where the readings are based on daily maximum and minimum thermometer observations.

Monthly mean wind velocities are based on the total miles of wind movement indicated by a standard 3-cup anemometer installed and operated according to specifications for a Class A National Weather Service evaporation station.

Temperature - Degrees Fahrenheit In the United States

Month	Amistad Dam, Texas				Eagle Pass, Texas				Falcon Dam, Texas			
	Mean 1984	Average March 1963-1984	1984		Mean 1984	# Average 1964-1984	1984		Mean 1984	# Average July 1950-1984	1984	
			Max.	Min.			Max.	Min.			Max.	Min.
Jan.	46.5	49.8	78	27	44.0	51.0	80	28	48.8	54.9	79	23
Feb.	55.9	53.5	81	33	59.0	55.4	85	35	64.0	59.4	90	37
Mar.	63.7	62.6	88	38	68.0	64.5	102	34	72.4	66.9	105	39
Apr.	72.1	71.0	104	44	75.7	72.9	108	48	80.4	74.8	109	52
May	78.7	72.0	103	52	80.6	77.7	108	54	85.5	79.6	108	51
June	83.5	82.1	103	60	85.3	83.1	104	62	92.8	83.7	104	59
July	82.4	84.7	101	68	86.4	86.1	104	69	91.0	85.4	104	69
Aug.	86.1	83.8	103	70	87.7	85.2	105	72	89.3	85.1	104	71
Sept.	78.7	78.7	97	55	80.3	79.7	99	53	80.8	80.6	100	55
Oct.	71.4	69.9	79	58	72.6	70.7	93	53	83.8	73.4	99	57
Nov.	59.9	59.7	68	49	57.3	60.7	85	32	70.0	63.9	93	33
Dec.	59.3	52.1	69	44	58.8	53.8	79	33	72.0	57.4	90	35
Yearly	69.8	68.3	104	27	71.3	70.1	108	28	77.6	72.1	109	23

In Mexico

Month	Cd. Juarez, Chihuahua				Ojinaga, Chihuahua				La Amistad, Coahuila			
	Mean 1984	# Average July 1960-1984	1984		Mean 1984	# Average April 1954-1984	1984		Mean 1984	# Average 1977-1984	1984	
			Max.	Min.			Max.	Min.			Max.	Min.
Jan.	46.4	45.6	68	19	46.4	49.8	73	21	48.2	48.2	82	25
Feb.	48.2	50.0	73	23	51.8	54.0	82	25	52.2	52.7	84	34
Mar.	57.2	57.0	84	25	59.0	61.4	90	23	64.4	62.6	95	36
Apr.	64.4	64.3	90	43	66.2	70.4	97	39	73.4	70.2	106	48
May	77.0	73.2	102	52	75.2	78.8	108	45	80.6	77.4	106	55
June	80.6	81.5	99	61	80.6	85.2	108	54	84.2	83.8	108	64
July	82.4	83.2	100	59		86.1			87.8	87.4	106	66
Aug.	78.8	80.8	99	63		84.1			87.8	87.3	108	70
Sept.	75.2	75.4	97	52	75.2	77.0	104	52	80.6	82.2	100	54
Oct.	62.6	64.8	84	41	66.2	69.9	90	43	73.4	72.0	99	54
Nov.	53.6	53.1	81	27	55.4	57.4	88	21	60.8	61.7	91	36
Dec.	48.2	46.6	68	28	51.8	50.6	79	28	59.0	52.5	84	34
Yearly	64.6	64.6	102	19		68.7		21	71.4	69.8	108	25

Month	Cd. Acuna, Coahuila				Jimenez, Coahuila				El Remolino, Coahuila			
	Mean 1984	# Average April 1951-1984	1984		Mean 1984	# Average March 1951-1984	1984		Mean 1984	Average June 1958-1984	1984	
			Max.	Min.			Max.	Min.			Max.	Min.
Jan.	46.4	48.8	79	23	51.8	52.5	82	28	57.2	57.2	100	34
Feb.	53.6	54.0	86	27	57.2	56.3	88	30	59.0	60.4	90	34
Mar.	60.8	62.7	86	30	66.2	63.4	100	30	64.4	66.5	93	34
Apr.	69.8	71.4	106	39	73.4	71.5	111	45	77.0	74.5	104	48
May	77.0	78.0	104	50	80.6	77.5	111	54	77.0	78.5	108	48
June	80.6	84.0	106	59	86.0	83.5	108	61	84.2	83.5	111	46
July	84.2	86.9	102	64	87.8	85.9	108	68	86.0	85.6	113	59
Aug.	84.2	86.3	104	66	89.6	85.5	109	66	82.4	85.1	108	59
Sept.	77.0	80.1	97	52	82.4	80.7	100	54		81.8		
Oct.	68.0	70.9	91	52	73.4	71.8	93	52		74.2		
Nov.	55.4	58.6	82	28	60.8	61.0	86	34		67.8		
Dec.	53.6	50.9	77	30	59.0	54.0	82	34		60.4		
Yearly	67.6	69.4	106	23	72.4	70.3	111	28		73.0		

Some months missing

TEMPERATURE, HUMIDITY, AND WIND

Temperature - Degrees Fahrenheit

In Mexico

Month	Piedras Negras, Coahuila				Guerrero, Coahuila				Villa Hidalgo, Coahuila			
	Mean 1984	# Average April 1951-1984	1984		Mean 1984	# Average 1958-1984	1984		Mean 1984	# Average August 1951-1984	1984	
			Max.	Min.			Max.	Min.			Max.	Min.
Jan.	48.2	51.0	82	25	53.6	52.4	86	32	48.2	53.4	75	27
Feb.	59.0	55.9	90	36	62.6	56.7	90	32	57.2	57.1	82	32
Mar.	68.0	63.6	102	34	71.6	67.0	104	34	68.0	65.5	102	37
Apr.	75.2	72.1	111	46	78.8	74.8	111	50	73.4	74.5	109	41
May	80.6	77.9	109	55	82.4	80.5	106	52	82.4	79.8	106	54
June	86.0	83.9	108	61	89.6	85.3	106	54	82.4	84.7	106	61
July	69.8	86.0	106	72	91.4	87.5	104	77	86.0	86.4	104	66
Aug.	89.6	86.0	108	72	91.4	87.2	108	73		86.7		
Sept.	89.6	80.3	102	52	86.0	82.3	104	61	77.0	81.6	99	52
Oct.	73.4	70.9	93	54	78.8	72.9	97	55	73.4	73.2	95	52
Nov.	60.8	59.8	84	27	66.2	62.9	86	32	60.8	61.3	88	32
Dec.	59.0	52.9	81	28	64.4	56.7	86	36	59.0	55.5	82	32
Yearly	70.8	70.0	111	25	76.4	72.2	111	32		71.6		27

Month	Nuevo Laredo, Tamps., C.I.L.A.				Nuevo Laredo, Tamps., M.S. of M.				Sabinas Hidalgo, Nuevo Leon			
	Mean 1984	Average August 1964-1984	1984		Mean 1984	# Average 1945-1984	1984		Mean 1984	Average October 1961-1984	1984	
			Max.	Min.			Max.	Min.			Max.	Min.
Jan.	50.0	55.3	79	28	51.8	55.4	77	25	53.6	55.8	77	32
Feb.	60.8	59.7	90	37	62.6	60.6	86	37	62.6	59.5	79	46
Mar.	87.8	70.2	108	41	71.6	67.8	104	43	68.0	68.0	91	46
Apr.	77.0	77.3	111	50	78.8	75.8	111	50	78.8	75.0	113	50
May	82.4	82.1	108	61	84.2	80.9	108	61	80.6	79.9	113	54
June	86.0	86.4	106	63	87.8	85.0	108	64	86.0	84.4	102	72
July	84.2	88.2	104	72	89.6	88.1	108	73	82.4	84.9	102	66
Aug.	87.8	88.1	106	68	89.6	87.5	108	75	82.4	84.8	97	68
Sept.	80.6	84.0	99	52	73.4	81.6	91	72	78.8	80.1	95	64
Oct.	77.0	76.2	100	55	78.8	73.4	97	54	71.6	73.2	90	54
Nov.	64.4	66.4	95	36	64.4	64.2	90	37	66.2	64.6	91	43
Dec.	62.6	60.4	88	36	66.2	51.7	84	68	62.6	58.8	82	45
Yearly	75.0	74.5	111	28	74.9	72.7	111	25	72.8	72.4	113	32

Month	Nueva Cd. Guerrero, Tamaulipas				Cd. Mier, Tamaulipas				Retamal, Tamaulipas			
	Mean 1984	Average 1958-1984	1984		Mean 1984	# Average October 1955-1984	1984		Mean 1984	# Average 1951-1984	1984	
			Max.	Min.			Max.	Min.			Max.	Min.
Jan.	53.6	55.5	81	32	42.8	54.9	81	32	55.4	59.8	97	27
Feb.	62.6	59.4	91	39	62.6	59.5	91	37	64.4	62.6	93	36
Mar.	71.6	67.6	109	43	71.6	67.9	106	45	73.4	69.5	113	39
Apr.	78.8	76.0	111	54	80.6	76.0	109	57	80.6	76.4	108	52
May	82.4	80.9	108	59	82.4	80.8	108	59	82.4	80.0	113	57
June	86.0	85.1	104	61	86.0	85.1	106	61	86.0	83.8	108	59
July	87.8	86.5	104	70	89.6	86.9	106	73	87.8	85.3	106	72
Aug.	89.6	86.6	106	70	89.6	86.8	106	72	89.6	86.1	108	72
Sept.	84.2	82.6	100	57	82.4	82.4	100	55	82.4	83.0	102	57
Oct.	78.8	75.2	100	59	78.8	75.0	99	57	80.6	77.0	102	59
Nov.	69.8	55.9	99	37	68.0	65.4	97	37	69.8	68.1	91	37
Dec.	68.0	58.3	93	39	68.0	58.5	90	30	69.8	61.9	91	37
Yearly	76.1	73.3	111	32	75.2	73.3	109	30	76.8	74.5	113	27

Some months missing

TEMPERATURE, HUMIDITY, AND WIND**Mean Wind Speed - Miles per Hour****In the United States**

Month	Martin King Ranch, Texas		Amistad Dam, Texas		Eagle Pass, Texas		Falcon Dam, Texas	
	1984	Average 1957-1984	1984	# Average March 1963-1984	1984	# Average December 1963-1984	1984	# Average July 1950-1984
Jan.	3.1	3.8	2.4	3.1	3.1	2.8	2.7	3.6
Feb.	3.8	4.6	3.2	3.6	4.2	3.3	3.6	4.2
Mar.	2.8	5.9	3.9	4.3	4.9	3.8	4.2	4.6
Apr.		6.2	3.8	4.4	4.8	4.0	3.8	5.2
May		6.6	3.7	4.3	4.5	3.9	4.0	5.2
June		7.1	4.3	4.7	5.1	3.8	5.5	5.5
July	6.2	6.6	3.5	4.3	4.9	3.9	4.6	5.8
Aug.	6.4	6.0	3.6	3.8	4.8	3.5	5.1	4.9
Sept.	6.0	5.1	3.4	3.5	4.9	3.0	4.0	3.8
Oct.	4.7	4.8	2.0	3.3	3.2	2.6	3.5	3.4
Nov.	4.6	4.0	2.6	3.0	3.1	2.4	3.5	3.6
Dec.	3.9	3.5	2.2	3.0	3.1	2.4	3.4	3.4
Yearly		5.4	3.2	3.8	4.2	3.2	4.0	4.4

Mean Relative Humidity - Percent**In the United States**

Month	Amistad Dam, Texas		Eagle Pass, Texas		Falcon Dam, Texas	
	1984	Average March 1963-1984	1984	# Average 1954-1984	1984	Average # July 1950-1984
Jan.	70.7	63.3	60.7	64.6	80.5	67.8
Feb.	38.1	60.3	45.6	60.4	70.3	65.0
Mar.	39.7	55.0	48.2	56.9	70.0	62.9
Apr.	35.8	57.9	36.9	58.9	60.3	62.8
May	55.1	65.1	52.2	65.8	60.7	66.0
June	59.6	63.9	55.7	64.0	65.1	64.6
July	55.1	60.3	51.4	60.0	64.2	61.6
Aug.	51.5	61.4	51.3	61.7	60.3	62.5
Sept.	55.7	66.2	55.9	67.0	68.8	67.1
Oct.	68.6	66.6	74.9	67.5	76.2	67.1
Nov.	63.1	64.1	65.7	66.9	62.7	67.1
Dec.	71.1	62.9	73.8	65.5	76.3	66.9
Yearly	55.3	62.2	56.0	63.3	68.0	65.1

In Mexico

Month	Nueva Cd. Guerrero, Tamaulipas	
	1984	Average August 1961-1984
Jan.	81	77
Feb.	75	75
Mar.	72	70
Apr.	63	70
May	79	76
June	84	74
July	74	71
Aug.	68	71
Sept.	77	77
Oct.	88	77
Nov.	75	76
Dec.	81	77
Yearly	76	74

Some months missing

DRAINAGE BASIN AND IRRIGATED AREAS Along the Rio Grande and Tributaries - 1984

The total area within the outer rim of the Rio Grande basin is about 335,500 square miles, but it contains large areas, especially along its southwestern boundary, that contribute no surface runoff to the Rio Grande. Such noncontributing areas constitute about 47 percent of the total area, leaving 176,333 square miles of productive watershed, which is the only one included in the list below.

The irrigated areas shown below are listed in accordance with the location of their diversion points and are all within the Rio Grande basin, except in the Lower Rio Grande Valley where large portions of irrigated lands in both countries lie outside the basin boundary line.

On the United States side, only the areas irrigated in 1984 are shown, except that in the reaches below Falcon Dam, the figures shown represent acreages which were subject to irrigation in 1984 but for which data on the portion actually irrigated is not known. On the Mexican side, part of the data may have been gathered previous to 1984. The irrigated area data tabulated are the best data that could be obtained.

DESIGNATION OF AREAS AND GAGING STATIONS	Drainage Basin Square Miles			Irrigated Areas - Acres		
	United States	Mexico	Total	United States	Mexico	Total
Above Elephant Butte Dam	25,923	0	25,923			
Elephant Butte Dam to Caballo Dam	1,295	0	1,295	0	0	0
Above Caballo Dam	27,218	0	27,218	0	0	0
Caballo Dam to American Dam	2,053	0	2,053	81,463	0	81,463
Above American Dam	29,271	0	29,271	81,463	0	81,463
American Dam to Acala Station	672	544	1,216	47,194	13,729	60,923
Above Acala Gaging Station	29,943	544	30,487	128,657	13,729	142,386
Acala Station to Fort Quitman Station	663	794	1,457	14,545	0	14,546
Above Fort Quitman Gaging Station	30,606	1,338	31,944	143,203	13,729	156,932
Fort Quitman Station to Above Presidio Station	1,646	1,410	3,056	a) 1,234	a) 188	1,422
Above Presidio Station above Rio Conchos	32,252	2,748	35,000	144,437	13,917	158,354
Rio Conchos above Boquilla Dam	0	8,131	8,131	0	b) 3,867	3,867
Rio Conchos above Luis L. Leon Dam	0	22,992	22,992	0	331,726	331,726
Rio Conchos - Total	0	26,404	26,404	0	335,593	335,593
Alamito Creek above Gaging Station	1,504	0	1,504	35	0	35
Presidio Station above Rio Conchos to Presidio Station below Rio Conchos - excluding above tributaries	340	91	431	2,954	210	3,164
Presidio Station above Rio Conchos to Presidio Station below Rio Conchos - Total	1,844	26,495	28,339	2,939	335,803	338,792
Above Presidio Station below Rio Conchos	34,096	29,243	63,339	147,426	349,720	497,146
Terlingua Creek above Gaging Station	1,070	0	1,070	5	0	5
Presidio Station below Rio Conchos to Johnson Ranch Station - excluding Terlingua Creek	1,093	2,258	3,351	853	2,758	3,611
Presidio Station below Rio Conchos to Johnson Ranch Station - Total	2,163	2,258	4,421	858	2,758	3,616
Above Johnson Ranch Gaging Station	36,259	31,501	67,760	148,284	352,478	500,762
Johnson Ranch Station to Foster Ranch Station	6,412	6,570	12,982	128	0	128
Above Foster Ranch Gaging Station	42,671	38,071	80,742	148,412	352,478	500,890
Foster Ranch Station to Langtry Station	182	505	687	0	0	0
Above Langtry Gaging Station (Discontinued)	42,853	38,576	81,429	148,412	352,478	500,890
Pecos River above Girvin	29,562	0	29,562	0	0	0
Pecos River, Girvin to Station near Langtry	5,617	0	5,617	0	0	0
Pecos River above Station at Mouth (Discontinued)	35,308	0	35,308	0	0	0
Devils River above Pafford Crossing Station	3,961	0	3,961	0	0	0
Devils River above Station near Mouth (Discontd.)	4,305	0	4,305	0	0	0
Langtry Station to Amistad Dam - excluding above tributaries	217	1,875	2,092	0	0	0
Langtry Station to Amistad Dam - Total	39,830	1,875	41,705	0	0	0
Above Amistad Dam	82,683	40,451	123,134	148,412	352,478	500,890
Amistad Dam to Below Amistad Dam Gaging Station	5	4	9	0	0	0
Above the Below Amistad Dam Gaging Station	82,688	40,455	123,143	148,412	352,478	500,890
Below Amistad Dam Station to Del Rio Station	60	100	160	351	0	351
Above Del Rio Gaging Station	82,748	40,555	123,303	148,763	352,478	501,241
Arroyo Las Vacas above Gaging Station	0	350	350	0	650	650
San Felipe Creek above Gaging Station	46	0	46	1,626	0	1,626
Pinto Creek above Gaging Station	249	0	249	400	0	400
Rio San Diego above Gaging Station	0	853	853	0	24,604	24,604
Rio San Diego - Total	0	859	859	0	25,447	25,447

DRAINAGE BASIN AND IRRIGATED AREAS Along the Rio Grande and Tributaries - 1984

DESIGNATION OF AREAS AND GAGING STATIONS	Drainage Basin Square Miles			Irrigated Areas - Acres		
	United States	Mexico	Total	United States	Mexico	Total
Del Rio Station to Jimenez Station - excluding above tributaries	669	110	779	c) 39,570	3,509	43,079
Del Rio Station to Jimenez Station - Total	964	1,319	2,283	41,596	29,606	71,202
Above the Jimenez Gaging Station	83,712	41,874	125,586	190,359	382,084	572,443
Rio San Rodrigo above Gaging Station	0	1,049	1,049	0	5,313	5,313
Rio San Rodrigo - Total	0	1,049	1,049	0	5,313	5,313
Jimenez Station to Maverick Power Plant - excluding Rio San Rodrigo	287	114	401	1,510	0	1,510
Jimenez Station to Maverick Power Plant - Total	287	1,163	1,450	1,510	5,313	6,823
Above Maverick Power Plant	83,999	43,037	127,036	191,869	387,397	579,266
Maverick Power Plant to Piedras Negras Station	244	32	276	160	2,377	2,537
Above Piedras Negras Gaging Station	84,243	43,069	127,312	192,209	389,774	581,803
Rio Escondido above Gaging Station	0	1,459	1,459	0	10,280	10,280
Rio Escondido - Total	0	1,471	1,471	0	10,280	10,280
Piedras Negras Station to El Indio Station - excluding Rio Escondido	237	206	443	320	1,845	2,165
Piedras Negras Station to El Indio Station - Total	237	1,677	1,914	320	12,125	12,445
Above El Indio Gaging Station	84,480	44,746	129,226	192,349	401,899	594,248
El Indio Station to Villa Hidalgo Station	629	1,683	2,312	1,348	4,230	5,578
Above Villa Hidalgo Gaging Station	85,109	46,429	131,538	193,697	406,129	599,826
Villa Hidalgo Station to Nuevo Laredo Station	607	433	1,040	2,828	5,913	8,741
Above Nuevo Laredo Gaging Station	85,716	46,862	132,578	196,525	412,042	608,567
Rio Salado above Venustiano Carranza Dam	0	15,831	15,831	0	35,798	35,798
Rio Salado above Las Tortillas Gaging Station	0	23,155	23,155	0	88,454	88,454
Rio Salado above River Road Crossing	0	23,323	23,323	0	88,454	88,454
Nuevo Laredo Station to Falcon Dam - excluding Rio Salado	2,042	1,327	3,369	d) 6,772	4,354	11,126
Nuevo Laredo Station to Falcon Dam - Total	2,042	24,650	26,692	6,772	92,808	99,580
Amistad Dam to Falcon Dam - excluding above tributaries	4,780	4,009	3,789	52,859	22,228	75,087
Above Falcon Dam	87,758	71,512	159,270	203,297	504,850	708,147
Rio Alamo above Gaging Station	0	1,675	1,675	0	7,660	7,660
Rio San Juan above Marte Gomez Dam	0	12,745	12,745	0	102,549	102,549
Rio San Juan - Marte Gomez Dam to Camargo Gaging Station	0	195	195	0	163,976	163,976
Rio San Juan - Total	0	12,949	12,949	0	266,525	266,525
Falcon Dam to Rio Grande City Station - excluding above tributaries	222	246	468	6,221	4,537	10,758
Falcon Dam to Rio Grande City Station - Total	222	14,870	15,092	6,221	278,722	284,943
Above Rio Grande City Gaging Station	87,980	36,382	124,362	209,518	783,572	993,090
Rio Grande City Station to Anzalduas Dam	952	798	1,750	183,907	500,262	684,169
Above Anzalduas Dam	88,932	87,180	176,112	393,425	1,283,834	1,677,259
Anzalduas Dam to Progreso Station	13	163	176	122,073	5,310	127,383
Above Progreso Gaging Station	88,945	87,343	176,288	515,498	1,289,144	1,804,642
Progreso Station to San Benito Station	7	9	16	321,026	3,781	324,807
Above San Benito Gaging Station	88,952	87,352	176,304	836,524	1,292,925	2,129,449
San Benito Station to Brownsville Station	14	15	29	89,008	2,293	91,301
Falcon Dam to Brownsville Station - excluding Rio Alamo and Rio San Juan	1,208	1,231	2,439	722,235	516,183	1,238,418
Above Brownsville Gaging Station	88,966	87,367	176,333	925,532	1,295,218	2,220,750
Brownsville Station to Gulf of Mexico				4,346	0	4,346
Falcon Dam to Gulf of Mexico - excluding Rio Alamo and Rio San Juan				726,581	516,183	1,242,764
Amistad Dam to Gulf of Mexico - excluding above tributaries				779,440	538,411	1,317,851
Above Gulf of Mexico				929,878	1,295,218	2,225,096

- a) Total area irrigated from the Rio Grande at least once during the year; additional irrigations from this source dependent on availability of river water in this reach
- b) Includes area above Madero Reservoir
- c) Includes 39,111 acres irrigated from the Maverick Canal below Mile 13 gaging station
- d) Includes 110 acres irrigated from small reservoirs

SUPPLEMENTARY DATA—INTERNATIONAL AMISTAD RESERVOIR

Deduced Inflows

Considering that a knowledge of the mean daily inflows reaching the International Amistad Reservoir would serve a useful purpose, such data have been deduced for 1984 showing the flows as closely as they can be approximated. These data are based on the daily operation of the International Amistad Reservoir, taking into account: a) record of gage heights at the dam; b) releases; c) filtrations; d) elevation-area-capacity tables based on 1981 survey; and e) rate of evaporation measured at the dam.

Flow contributions from different sources, river channel losses, reservoir evaporation, accuracy of gage-height records, displacement due to wind action on the reservoir, and bank storage and return incident to changes in reservoir level, all tend to cause variations in the deduced determinations; and the inflows shown below should not necessarily be in agreement with the combined flow of the Rio Grande at Foster Ranch, Pecos River near Langtry, and Devils River at Pafford Crossing.

In spite of the deficiencies noted above and others that may occur, the data shown below represent a reasonable approximation of the flows entering the International Amistad Reservoir.

Mean Daily Discharge in Second-Feet 1984 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1,250	1,830	1,340	1,220	967	1,010	4,490	2,360	4,730	3,440	2,120	1,850
2	1,430	1,920	1,390	1,600	1,200	1,010	4,560	2,340	4,310	3,380	1,950	1,890
3	1,500	1,880	1,460	1,330	1,510	1,440	3,910	2,440	4,340	2,270	1,830	1,790
4	1,630	1,960	1,600	1,970	1,620	2,660	3,680	2,380	4,070	2,140	1,710	1,660
5	1,680	2,060	1,730	1,740	1,780	2,770	3,630	2,500	3,610	2,280	1,530	1,540
6	1,730	1,940	1,750	1,870	2,010	3,520	4,030	2,150	3,320	2,540	1,280	1,420
7	1,750	1,910	1,820	2,010	2,250	3,320	4,900	2,370	2,910	2,670	1,420	1,500
8	1,900	1,940	1,840	2,260	2,020	2,840	3,860	2,240	2,460	3,310	1,400	1,560
9	2,100	2,060	1,730	2,270	1,570	1,910	3,650	2,580	2,460	3,130	1,570	1,440
10	2,010	2,060	1,810	2,380	1,040	2,170	3,240	3,150	2,530	5,190	1,530	1,410
11	1,890	2,250	1,590	2,420	1,170	1,930	3,070	3,500	2,450	14,900	1,480	1,490
12	1,730	2,230	1,890	2,210	1,300	1,720	3,190	3,600	2,590	6,810	1,500	1,520
13	1,660	2,190	1,930	2,140	1,560	2,050	3,080	4,470	2,340	6,670	1,580	1,590
14	1,670	2,110	1,930	2,110	2,030	2,510	2,730	6,280	2,200	7,240	1,630	1,710
15	1,670	2,090	2,010	1,910	2,040	2,870	2,340	4,430	2,510	4,850	1,610	1,380
16	1,590	2,140	2,190	1,750	2,780	3,650	2,410	3,270	2,600	3,330	1,590	1,350
17	1,580	2,240	2,100	1,600	2,390	3,440	2,440	2,990	2,820	2,770	1,740	1,950
18	1,730	2,160	2,100	1,660	4,320	3,150	2,440	3,740	2,300	2,830	1,800	2,170
19	1,760	2,090	1,770	1,450	3,420	5,330	2,180	4,550	2,230	2,540	1,810	2,360
20	1,700	1,940	1,860	1,850	3,130	7,900	2,330	5,510	2,170	2,450	2,010	2,200
21	1,650	1,690	1,650	1,930	3,430	10,300	1,900	5,100	2,010	2,210	1,850	2,060
22	1,710	1,800	1,500	1,800	3,080	9,970	2,160	5,510	1,870	2,140	1,740	2,000
23	1,720	1,750	1,500	1,560	2,760	6,410	2,400	5,550	1,730	1,630	1,590	1,910
24	1,800	1,760	1,410	1,720	2,390	4,640	2,750	6,060	1,900	1,670	1,830	1,820
25	1,740	1,720	1,370	1,340	1,300	4,790	5,500	5,940	2,120	1,760	1,870	1,790
26	1,710	1,650	1,400	1,550	1,480	4,400	5,490	5,780	2,040	1,730	2,470	1,700
27	1,720	1,480	1,350	1,490	1,560	4,470	5,220	5,780	2,090	1,900	2,730	1,710
28	1,640	1,400	1,300	1,500	2,130	5,260	3,100	5,790	4,550	2,270	2,330	1,920
29	1,670	1,330	1,140	1,420	2,630	4,830	3,240	5,740	5,400	2,590	2,300	1,350
30	1,700		1,070	1,220	2,360	5,030	2,830	5,570	4,720	2,250	2,130	2,140
31	1,920		1,380		1,440		2,520	5,400		2,250		3,530
Sum	53,300	55,580	51,000	53,690	65,797	116,260	103,320	129,060	92,380	106,640	54,140	57,310

Month	Current Year 1984						Period 1973-1984					
	Extreme Gage-Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet			
	High	Low	Day	High	Day	Low			Average	Maximum	Minimum	
Jan.			9	2,100	1	1,250	1,710	105,124	105,919	136,708	72,708	
Feb.			11	2,250	29	1,330	1,920	110,241	109,810	172,088	73,688	
Mar.			16	2,190	30	1,070	1,550	101,157	146,855	304,417	93,840	
Apr.			11	2,420	1	1,220	1,790	106,473	165,720	354,458	36,703	
May			18	4,320	1	967	2,120	130,506	188,985	260,890	103,515	
June			21	10,300	1	1,010	3,890	230,598	188,037	418,612	123,948	
July			25	5,500	21	1,900	3,330	204,932	210,515	639,035	85,995	
Aug.			14	6,280	6	2,150	4,160	255,987	243,514	515,925	129,570	
Sept.			23	4,550	23	1,730	3,030	133,233	361,473	2,091,428	92,915	
Oct.			11	14,900	23	1,630	3,440	211,517	309,220	950,737	89,772	
Nov.			27	2,730	5	1,280	1,800	107,395	148,391	454,512	57,516	
Dec.			31	3,530	10	1,410	1,850	113,673	110,377	163,332	58,459	
Yearly				14,900		967	2,560	1,360,326	2,317,421	4,328,798	1,406,554	
	Meters		Cubic Meters per Second				Thousands of Cubic Meters					
				422		27.4	72.5	2,295,292	2,358,492	5,339,319	1,734,984	

Ø Mean daily † And other days

SUPPLEMENTARY DATA--INTERNATIONAL FALCON RESERVOIR

Deduced Inflows

Considering that a knowledge of the mean daily inflows reaching the International Falcon Reservoir would serve a useful purpose, such data have been deduced for 1984 showing the flows as closely as they can be approximated. These data are based on the daily operation of the International Falcon Reservoir, taking into account: a) record of gage heights at the dam; b) releases as measured at both hydroelectric plants and outlet works; c) elevation-area-capacity tables based on 1971-1972 surveys; and d) rate of evaporation measured at the dam and Nueva Cd. Guerrero applied to an area one foot higher than the average area of two consecutive days.

Flow contributions from different sources, irrigation diversion between Laredo and Falcon, river channel losses, reservoir evaporation, accuracy of gage-height records, displacement due to wind action on the reservoir, and bank storage and return incident to changes in reservoir level, all tend to cause variations in the deduced determinations; and the inflows shown below should not necessarily be in agreement with the combined flow of the Rio Grande at Laredo and the Rio Salado at Las Tortillas.

In spite of the deficiencies noted above and others that may occur, the data shown below represent a reasonable approximation of the flows entering the International Falcon Reservoir.

Mean Daily Discharge in Second-Foot 1984 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	2,020	537	1,170	2,830	1,350	1,230	1,940	3,260	3,640	3,260	1,140	844
2	2,330	1,550	1,570	3,600	2,110	1,390	2,120	3,460	3,530	2,050	1,680	742
3	2,740	1,210	2,130	4,030	1,100	1,490	2,100	3,390	5,300	1,700	1,120	1,240
4	2,770	2,710	1,980	3,850	1,550	1,610	2,150	3,170	3,880	1,500	1,650	936
5	2,440	2,260	1,850	3,920	1,090	1,330	2,590	3,280	3,740	1,730	1,390	470
6	2,630	1,640	1,770	4,480	8,830	572	2,120	2,950	3,830	1,590	1,010	519
7	2,770	2,250	1,560	4,980	10,200	809	2,530	3,140	2,800	1,710	855	477
8	2,580	2,260	1,840	5,690	13,500	710	2,980	2,710	3,440	2,980	703	735
9	2,720	2,480	1,610	6,500	10,400	1,380	3,310	3,290	2,540	1,370	809	957
10	2,440	2,270	1,890	7,270	7,630	1,260	3,500	3,670	3,030	1,430	1,160	1,010
11	2,350	3,030	2,070	7,240	6,570	2,540	3,960	3,070	2,750	1,780	653	1,230
12	1,840	2,620	2,460	8,370	7,270	2,130	3,480	2,970	3,080	2,700	937	1,120
13	1,310	1,350	1,940	9,390	7,560	2,300	3,030	3,090	2,990	15,900	727	1,210
14	1,090	2,040	2,190	8,550	8,350	1,730	2,710	3,260	3,220	10,800	851	1,240
15	1,250	3,470	2,220	7,800	8,480	1,280	3,400	2,960	2,820	8,930	660	1,580
16	1,080	1,470	1,830	4,060	9,460	1,390	3,250	1,910	2,830	7,350	604	1,990
17	1,890	2,290	1,830	2,000	9,990	1,950	3,370	3,530	1,910	4,410	826	1,380
18	964	2,910	2,260	3,300	14,500	2,300	3,260	2,430	2,300	3,600	1,030	1,310
19	957	1,100	2,800	2,360	16,600	1,640	3,030	2,470	2,390	1,510	738	1,440
20	1,110	1,190	2,300	1,680	17,200	1,550	3,350	1,870	2,380	2,170	629	1,600
21	1,010	703	2,200	2,200	9,110	1,830	2,990	2,470	2,220	2,360	406	1,790
22	840	512	2,650	2,020	9,390	1,510	3,530	2,830	1,490	1,750	192	1,590
23	2,010	883	2,740	388	7,650	1,730	3,600	2,130	1,300	1,070	314	1,590
24	2,390	643	2,560	257	6,220	1,710	3,740	2,340	1,500	2,000	301	1,890
25	2,260	946	2,360	706	3,990	2,100	3,080	2,240	1,880	1,590	353	1,860
26	1,130	2,030	2,810	410	2,920	2,130	3,430	2,500	3,070	812	536	1,850
27	1,560	1,900	3,040	350	2,320	1,580	4,030	3,310	1,110	1,850	798	1,420
28	1,130	1,820	2,790	427	3,110	1,420	4,270	3,460	1,470	1,450	338	1,740
29	1,430	1,620	1,640	396	3,380	1,900	4,060	3,350	4,480	1,200	618	1,840
30	3,670		1,710	671	1,300	1,990	3,740	3,340	3,130	791	883	1,850
31	2,030		2,670		1,690		3,230	3,810		812		3,880
Sum	58,821	51,734	66,500	109,735	215,470	48,481	97,980	91,670	94,100	94,255	23,811	43,330
Current Year 1984										Period 1968-1984		
Month	Extreme Gage Feet		Extreme Second-Foot				Average Second-Foot	Total Acre-Feet	Acre-Feet			
	High	Low	Day	High	Day	Low			Average	Maximum	Minimum	
Jan.			30	3,670	22	840	1,900	116,674	129,536	245,376	50,635	
Feb.			15	3,470	22	512	1,780	102,630	155,830	453,053	54,934	
Mar.			27	3,040	1	1,170	2,140	131,381	161,407	431,073	53,064	
Apr.			13	9,390	24	257	3,670	217,653	169,698	571,717	49,911	
May			20	17,200	5	1,090	6,960	427,319	315,812	768,748	101,854	
June			11	2,540	6	572	1,620	95,172	290,969	770,709	46,609	
July			28	4,270	1	1,940	3,150	194,376	299,852	1,056,340	33,481	
Aug.			31	3,810	20	1,870	2,950	181,810	269,948	1,023,293	54,413	
Sept.			3	5,300	27	1,110	2,800	156,306	395,363	1,442,682	137,408	
Oct.			13	15,903	30	791	3,040	187,005	341,235	1,365,884	56,661	
Nov.			2	1,580	22	192	795	47,219	168,110	538,929	40,650	
Dec.			31	3,890	5	470	1,400	85,952	134,584	304,855	42,870	
Yearly						17,200	192	2,690	1,955,502	2,832,844	6,234,950	1,280,057
Yearly	Meters		Cubic Meters per Second				Thousands of Cubic Meters					
				485		5.45	76.3	2,412,037	3,494,277	7,690,727	1,578,946	

Ø Mean daily

CORRECTIONS TO PREVIOUS WATER BULLETINS

<u>Water Bulletin and Page Number</u>	<u>Heading</u>	<u>Reference</u>	<u>Published As</u>	<u>Correction</u>
53 - 84	Stored Water in Large Reservoirs of the Rio Grande Basin	Total in United States Reservoirs	(Capacity 6,007.2)	(Capacity 5,994.7)
53 - 133	Location of Rainfall Stations on the Rio Grande Watershed	Column headed "RECORD BEGAN" Acala Station	# 1983	# 1938